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ALTERATIONS OF PERSONALITY

BY

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WITH NOTES AND A PREFACE BY

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EDITOR'S PREFACE.

THIS book of M. Binet's has already rendered service in the original, both in the way which he indicates in his preface—as a *résumé* of results in the very interesting field which it covers—and also as a handbook of the topic for the general reader. In this latter capacity it is eminently suited to its place in this series. It should have a wide reading by educated persons who are not psychologists, but who yet wish to know the sort of experiments the psychologists and medical men are making in this extraordinary department of investigation.

M. Binet, who is now Director of the Laboratory for Physiological Psychology at the Sorbonne, Paris, is already so well known to readers of English that it would be quite out of place to speak either of his scientific position or of his power of popular statement except in reference to this particular book, now for the first time made accessible in English. The work appeared in France in 1891, and was at once welcomed as an authoritative statement of the best results by one of the investigators who had done much to discover them. M. Binet's moderation of statement and calmness of view, in a field where great extravagances have been witnessed and where controversy has been fierce,

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will commend the book to all those who value these scientific qualities.

The general hypothesis which M. Binet finds himself driven to—that of contemporary "personalities" in the same individual, even in normal life—may seem to some unnecessary; and indeed the evidence is at points not yet adequate to the conclusion, I think, unless we admit the contention of M. Binet, that "personality" is a thing of relative synthesis which may be manifested in very varied degrees of completeness. Starting with the cases of "double personality" as he does, cases in which the evidence is very strong, and working from these up, through the manifestations of subconscious action by hysterical patients, to the interpretation of certain phenomena of normal life—it is certainly hard to draw a line anywhere, and the author seems justified in keeping throughout to the use of the word "personality," with which he sets out. But I confess that I have a certain hesitation as to whether the method might not the rather be reversed. Might we not say that the facts of the normal life may be very well explained by the theories of "nervous habit," "suggestion," etc., and that it is probable that the more exaggerated phenomena of the hysterical cases and the "double personality" instances are possibly "limiting cases"—so that it is necessary to call in a real duality or plurality of personal mental lives only when these principles clearly break down? It seems to me the safer course, from a scientific point of view, to carry the normal as far as possible before resorting to the abnormal as an explaning principle, rather than to begin with what is clearly abnormal and bring it up into the current mental life. This would seem to me especially the case where the criteria of so-called

"personality" are so largely matters of relative habit and suggestion as are the variations in memory and character which M. Binet uses to define differences of personality.

This possible difference of interpretation is clearly recognised, however, by M. Binet, and those who are acquainted with the outlines of the theory of the Nancy school, who make so much of "suggestion," will be able to see how strong the case may be made against that point of view. Theories aside, moreover, the reader—be he psychologist, medical man, a member only of the "intelligent public"—will value the collected resources here presented for the study of the subject and admire the candour and ability with which the author has marshalled them.

The best literature is still to be found in the works which the author cites in his pages: the books of Janet and Bernheim, the articles of Meyers in the Proceedings of the Society for Psychical Research, the great chapter on The Consciousness of Self in William James's Principles of Psychology. Later things from a critical point of view are Wundt's Hypnotismus und Suggestion and Ladd's theoretical chapter on The Consciousness of Identity and Double Consciousness in his Philosophy of Mind. Dessoir's Das Dopple Ich may also be consulted. I have reported detailed observations of "suggestive" phenomena in child life, in the chapter on Suggestion in my work on Mental Development. Hack Tuke's Dictionary of Psychological Medicine contains concise authoritative articles on Suggestion by Bernheim and Double Consciousness by Azam.

The slight foot-notes which I have added here and there hardly justify the word "editor."

J. Mark Baldwin.

Princeton, *April, 1896.*

AUTHOR'S PREFACE.

Fifteen years ago researches in pathological psychology, based upon the study of hysteria and suggestion, were begun in France, England, and other countries. Physiologists and philosophers gave themselves up enthusiastically to this new line of work, and in a short time a very considerable number of observations and experiments of different sorts were collected. The principal questions taken up with more or less fruitfulness were hallucinations, paralysis by suggestion, alterations of personality, diseases of memory, muscular sense, suggestion both in the waking state and in hypnosis, unconscious suggestion, etc.

As these researches were multiplied and extended, many discussions arose. Not only were there differences of opinion on questions of theory, but important facts confirmed by some were denied by others; and so various schools arose. These controversies, which are of course to be regretted, but which are nevertheless usual and even necessary in new branches of research, yet tended in this case to cast some doubt upon the real value of the material.

My intention in writing this book is not to keep up the discussions of the schools. Instead of opposing my experiments to those of other authors, I wish to gather together all the results that have been reached in the

study of one question in order to find out which of these results naturally go together and allow themselves to be grouped under general principles. I shall cite only those experiments which have been confirmed by all and which give a constant result, no matter from what point of view they may be conducted. And I shall suggest merely, without any attempt at estimation, those phenomena which have been observed so far only by one person, and which can not therefore as yet be brought into the class of known and accepted facts, and I shall subject my own works to this rule just as I do those of others.

The occasion seems to me a favourable one to make such an attempt as this, for the situation is now very singular. Many observers who do not belong to the same school, nor even to the same country, and who are not even working in the same lines or with the same objects, and who, moreover, are largely ignorant of one another, are nevertheless reaching the same result without knowing it; and this result, reached by so many different roads, and resting upon such a variety of mental phenomena, is the "alteration of personality," the division or dismemberment of the self. It is proved that in a great many cases and in very diverse conditions the normal unity of consciousness is broken up and several distinct consciousnesses are formed, each of which may have its own system of perceptions, its own memory, and even its own moral character. I propose to give a detailed account of the result of these recent researches on the alterations of personality.

A. B.

Saint-Valery, *1891*.

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ALTERATIONS OF PERSONALITY.

PART I.

SUCCESSIVE PERSONALITIES IN THE SAME ORGANISM.

CHAPTER I.

SPONTANEOUS SOMNAMBULISM.

I.

The value of spontaneous psychological phenomena consists in the fact that they are not influenced from outside. They are not arranged for and unconsciously influenced by an investigator whose mind is already made up, it may be; they do not correspond to any one's preconceived ideas. It is with such phenomena, therefore, that we may begin our study.*

The variations of personality found in diseased patients take on a great number of forms. It is not my intention to study all of them, but only a single type of them—i. e., the variations which take the form of two or more personalities in the same individual, the cases of so-called "multiple personality." This phenomenon is found in many different classes of patients. It is common in hysteria, and the hysterical cases are those which have been most adequately investigated.

The cases referred to often go by the name of som-

* Ribot has urged this thought in the preface to his book on Diseases of Personality, and I think it is very important.

nambulism. The term somnambulism is a proper one, provided it be defined. It is not always kept to a strictly exact meaning, and some confusion has arisen from the great variety of the instances brought to light by recent research. The case is similar to that of aphasia. When Broca studied it, aphasia was capable of one simple definition. It meant the loss of articulate speech. But now that so many other forms of defect of the function of speech have been discovered and analyzed—such as agraphia, verbal blindness, deafness, etc.—there is no longer aphasia only, but *aphasias*. Just so the term somnambulism now gets a broader meaning. It is no longer one particular and unchanging mental condition; there are many somnambulisms.

In popular usage somnambulism is the state of those who rise in the night and perform automatic and even intelligent acts without waking. They dress themselves perhaps, resume their day's work, solve a problem to which they had vainly sought the solution before, then return to bed and to sleep again; the next morning they have no memory of having been up in the night. Indeed, they are often much surprised to see a piece of work now finished which had been unfinished the evening before. Or they walk on the roof or perform some other equally startling feat. Authors are not as yet entirely agreed upon the nature of this sleepwalking, but the general tendency of the day is to admit that it covers a mass of irregular phenomena which resemble one another in appearance only, being really quite distinct in nature. Among the nocturnal somnambulists we must first consider the epileptics, of whom a certain number do show "itinerant automatism," so to speak. It is still admitted, at least provisionally, that perfectly healthy people may be found among these

sleepwalkers, and that consequently a physiological "noctambulism" must exist. But the majority—the great majority—of somnambulists are undoubtedly afflicted with hysteria, and it is in a crisis of hysterics that this peculiarity of night walking occurs.*

In these phenomena we may see an example of double personality. These noctambulists are two persons. The person who rises in the night is entirely distinct from the one who is awake during the day, since the latter has no knowledge or memory of anything that has happened during the night. But it is not possible to make an adequate analysis of this state; the elements are too obscure.

Another form of natural somnambulism exists, however, which we may study. It is "daytime" somnambulism or "vigilambulism." We shall confine ourselves to the consideration of this phase of the subject. We should be on our guard, as we have seen above, against confounding the various forms of natural or spontaneous somnambulism. The distinctions to be established depend upon the peculiar conditions in which these particular states of somnambulism are found, and also upon the characteristics which they present. We shall apply ourselves in this chapter to the study of a phase of natural somnambulism which presents the following characteristics: It concerns hysterical patients who possess, besides their normal and regular life, another psychological existence or second state, so to speak, of which they retain no memory in their normal condition. The peculiar characteristic of this second state is that it constitutes a complete psychological existence;

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* Consult on this subject a lecture of M. Charcot, reported by M. Blocq, in the Gazette hebd. de Med. et de Chir., March 22, 1890.

the subject lives the everyday life, his mind is alive to all ideas and perceptions, and he is not delirious. Uninformed persons would never know that the subject is in a state of somnambulism.

The best examples that can be cited of the somnambulism that we have just defined are found in observations, now old, made by Azam, Dufay, and other physicians. These observations are to-day well known and trite. They have been published and analyzed in a number of medical journals, and even in some literary ones; but we hope that recent researches of experimental psychology on the variations of consciousness will throw new light on these old facts. We shall study them from a little different standpoint than that from which they have been regarded until now, and perhaps we shall come to understand them better. Considered formerly as rare, exceptional phenomena, as genuine pathological curiosities, calculated to astonish rather than to instruct, these variations of personality now appear to us as the magnifying of mental disorders not uncommon in hysteria and similar conditions.

One of the most celebrated cases is the American lady reported by MacNish:* "A young lady, well informed, well bred, and with a good constitution, was suddenly and without any preliminary warning overpowered by a deep sleep which lasted several hours beyond the usual time. When she awoke she had forgotten all she knew. Her memory had retained no notion whatever of words or objects; it was necessary to teach her everything again; she had to learn

* MacNish, Philosophy of Sleep, 1830. The observation belongs, it appears, to Mitchell and Nott, and appeared for the first time in 1816.

again to read, to write, and to count; little by little she became familiar with persons and objects around her, although to her it was like seeing them for the first time. Her progress was rapid.

"After some time—several months—she was, from no known cause, attacked by a sleep similar to that which had preceded her new life. On waking she was in exactly the same state in which she had been before her first sleep, but she had no memory of anything that had happened during the interval; in a word, during the *former state* she knew nothing of the *later state*. It is in this way that she mentions her two lives, which are continued separately and alternately in memory.

"For more than four years these phenomena occurred at about the same intervals with this young lady. In either state she has no more remembrance of her double nature than two distinct persons have of their separate natures. For example, during the former state she possesses all the information that she acquired in her childhood; in the other state she only knows what she has learned since her first sleep. If any one is introduced to her in one of these states she has to study and recognise him in both of them to have a complete idea of him. And it is the same with everything.

"In the first state her handwriting was beautiful, as it had always been, while in the other state her handwriting was poor, awkward, and unformed, because she had neither time nor ability to improve it.

"This series of phenomena continued four years, and Madame X—— learned to manage very well in her intercourse with her family."

It is needless to detain ourselves with the analysis of this incomplete observation. The only advantage which

it presents is that it gives us a concise idea of the variations of personality which we desire to study. We see at first sight that the characteristic of each of these personalities, the distinguishing mark, that which decides whether they are many or one, is a peculiar state of memory. In the first state the patient remembered nothing that happened in the second state, and, conversely, when she was again in the second state she forgot the first. Nevertheless the memory belonging to each of these states is well organized and connects all the parts, so that the moment the patient is in a given state he recalls the environment incident to it.

We shall consider at greater length the observations on Félida, made by M. Azam, of Bordeaux. The observations have been very long and minute. They were begun in 1858, and are still unfinished, stretching, therefore, over a period of more than thirty years. We shall reproduce the case here in full.*

Félida was born in Bordeaux, of well-to-do parents. Her development was normal. When she was about thirteen she showed symptoms of incipient hysteria, various nervous troubles, uncertain pains, and hæmorrhage from the lungs which was not explained by the condition of the organs of respiration.

She was a competent and skilful workwoman, and worked by the day as seamstress. When she was about fourteen and a half, from no known cause, sometimes under the control of an emotion, Félida felt a pain in her temples, and fell in a profound languor similar to sleep. This state lasted about ten minutes. After that, and spontaneously, she opened her eyes, seemed

* Hypnotisme, double conscience, et alterations de la Personalité, Paris, 1887.

to wake, and passed into the "second state," as we may call it, that lasted an hour or two; then the languor and sleep reappeared, and Félida became normal. This kind of attack recurred every five or six days, or more seldom. Her parents and those about her, seeing her changeable ways during this sort of second life and her forgetfulness on awaking, believed her to be insane.

Soon the symptoms of hysteria, so-called, became worse. Félida had convulsions, and the signs of lunacy became more alarming.

M. Azam was called to take the case in June, 1858. This is what he stated in October of that year:

Félida is a brunette, of average height, robust, and neither stout nor thin. She is subject to frequent blood spitting, probably merely symptomatic. She is very intelligent, and fairly well informed for her social position. Her disposition is sad, even morose. She is very decided, and her eagerness for work is great. Her higher feelings seem to be little developed. She is constantly thinking of her unhealthy condition, which to her suggests grave apprehensions; and she suffers from sharp pains in various parts of her body, especially in the head. The symptom of pain in the head called *clavus hystericus* is well developed in her case.

Her gloomy manner and disinclination to talk are particularly noticeable; she answers questions, but that is all.

When carefully examined from an intellectual point of view her actions, ideas, and conversation are found to be perfectly rational.

She is attacked almost daily, from no known cause, or perhaps under the control of an emotion, by what she calls her *crisis*. In fact, she passes to the "second state." She is seated, her sewing in her hand; sud-

denly, without the slightest premonition, and after a pain in her temples more violent than usual, her head falls forward, her hands remain inactive and drop by her side, she sleeps or seems to sleep; but it is a peculiar kind of slumber, for no noise or stimulus, pinch, or prick is able to rouse her; and, further, this kind of sleep is almost instantaneous. It lasts two or three minutes; formerly it was much longer.

After that period of time Félida wakes, but she is no longer in the same intellectual state in which she was when she fell asleep. Everything appears different. She raises her head and, opening her eyes, smilingly salutes those around her as if they had just arrived. Her countenance, formerly sad and silent, brightens, and is all gaiety; her voice is strong; and she hums while she continues the sewing which she had commenced in the previous state. She rises; her gait is brisk, and she scarcely complains of the various woes from which she had suffered a few minutes before. She attends to the usual household duties, goes out about the town, makes visits, will undertake any kind of work, and her gaiety and whole appearance is that of any healthy young girl of her age. No one would notice anything unusual about her. It is simply that her disposition is entirely changed; from sad she has become gay, and her gaiety amounts almost to turbulence. Her imagination is overexcited. From the slightest cause she is affected to sadness or joy; instead of being indifferent to everything she has become alive to excess. In this state she remembers perfectly everything that has happened in the other similar states that have preceded it, and also during her normal life. It is well to add that she has always maintained that the state, whichever one it happens to be in which she is when one

speaks to her, is the normal one which she calls her rational state, in opposition to the one which she calls her crisis.

In this life, as in the other, her intellectual and moral faculties, although different, are unquestionably complete; there is no delirium, no mistaken judgments, no hallucination. In short, Félida is different. It can even be said that in this "second state," as M. Azam calls it, all her faculties seem to be more fully developed and more complete.

This second life, where physical pain is not felt, is much superior to the other; and it is especially so on account of this fact, that while it lasts Félida not only remembers all that has happened during the former attacks, but also during the whole of her normal life; whereas, in her normal life she has no memory whatever of anything that has happened during her attacks.

Presently, although the time varies somewhat, Félida's gaiety suddenly disappears, her head falls forward, and she relapses into a state of torpor. Three or four minutes elapse, and she opens her eyes and again takes up her ordinary life. It is scarcely noticeable, for she continues her work with eagerness, almost with frenzy. It is most frequently a piece of sewing, undertaken in the preceding period. She does not recognise it, and it costs her an effort of mind to understand it. Nevertheless she continues as best she can, at the same time bewailing her unhappy condition. Her family who are accustomed to this state help her to accommodate herself to it.

A few minutes ago she was singing a song, but when asked to repeat it she is utterly unable to do so. A visitor whom she has just received is mentioned to her, but she can not recall any one. Her forgetfulness

only applies to events that have happened during the second condition; any general idea acquired before that time is not affected. She is perfectly able to read, write, count, cut out, sew, etc., and do a multitude of other things that she knew before she was sick or that she learned during the periods which preceded the normal state.

About 1858 a third state appeared, which was nothing more than an accidental symptom of her attack. M. Azam has only seen this state two or three times, and in sixteen years her husband has only seen it about thirty times. When she is in the second condition she falls asleep in the manner already described, and, instead of waking in her normal state as usual, she wakes in a peculiar state, of which the chief characteristic is an indescribable terror. Her first words are, "I am frightened! . . . I am frightened!" She recognises no one except her husband. This quasi-delirious state is of short duration. Her two existences are perfectly distinct, as the following fact will show: A young man, about twenty years old, knew Félida very well, and often came to the house. These young people fell in love with each other and became engaged. In her second condition she became *enceinte*. In her period of normal life she was not aware of it.

One day Félida, who was more sad than usual, said to the physician with tears in her eyes, that "her malady was increasing, that she was becoming very large, and every morning she suffered from nausea"—in short, she correctly described her condition to him. During the attack which soon followed Félida said: "I remember perfectly what I have just said to you; you must have easily understood me; I frankly confess it. . . . I am *enceinte*." In this second life her con-

dition caused her no uneasiness, and she kept in good spirits. As she had become *enceinte* during the second condition, she was ignorant of it during her normal state, and only knew it during the other similar states. But this ignorance could not last. A neighbour, in whom she had confided, and who was more sceptical than she ought to have been, believed that Félida was shamming, and after the attack brutally reminded her of her confidence. This discovery affected the young girl so strongly that she was thrown into violent hysterical convulsions. When she was seventeen and a half years old Félida was confined, and during the two years which followed her health was excellent, no particular phenomena being observed.

When she was about nineteen and a half years old the symptoms reappeared in a moderately bad form. A year later she had a second and very difficult confinement, accompanied by expectoration of blood and many nervous symptoms connected with hysteria, such as attacks of lethargy, lasting three or four hours.

At this time, and when she was just twenty-four, the attacks became more frequent, and their duration, which was originally uniform with the periods of her normal life, began to exceed them. The pulmonary hæmorrhages became more frequent and more severe and she had a stroke of partial paralysis, attacks of lethargy, trance, etc.

From her twenty-fourth to her twenty-seventh year the patient had three years of perfectly normal life; then the disease reappeared. In sixteen years Félida had eleven confinements or miscarriages.

The second condition, the period of attack which in 1858 and 1859 only occupied about a tenth part of her life, gradually became of greater duration. It became

equal to her normal life, then it exceeded it, and gradually reached such a pass that it almost entirely filled her existence.

In 1875 M. Azam, who had lost sight of Félida for a long time, again came across her, and found her to be a mother of a family, and keeping a grocery store. She was then thirty-two years old, and had but two children living. She was very thin, but did not look sickly. She was subject to a periodical loss of memory, which she erroneously termed a crisis.

But these so-called crises, which are, after all, nothing more than the periods of her normal life, have become less frequent. The lack of memory which characterizes them has caused her to make so many blunders in her intercourse with her neighbours, that Félida has retained the most painful recollections and is afraid of being considered idiotic. She is very unhappy when she thinks of her normal condition, and occasionally has thoughts of suicide. She realizes that at such times her character changes very much. She says she becomes spiteful and provokes violent scenes in her home.

She relates various incidents which show clearly the cause of her trouble. One day when she was returning in a cab from the funeral of a lady of her acquaintance she felt the period coming on which she calls her crisis (normal state). She dozed several seconds, without the ladies who were in the cab with her noticing it, and awoke in the other state, absolutely at a loss to know why she was in a mourning carriage with people who, according to custom, praised the qualities of a deceased person whose name she did not even know. Accustomed to such positions she waited; by adroit questions she managed to understand the situation, and no one suspected what had happened.

She lost her sister-in-law after a long illness, but during the few hours of her normal state she had the mortification of being absolutely ignorant of all the circumstances of her death; it was only by her mourning dress that she knew that her sister-in-law, whom she had known to be ill, had died.

Her children attended their first communion while she was in the second condition; she also had the mortification of being unaware of it during the period of the normal state.

A certain change then occurred in the patient's condition. Formerly Félida entirely lost consciousness during the short periods of transition; this loss was so complete that one day, in 1859, she fell in the street and was picked up by passers-by. After awaking in her other state she thanked them, laughing heartily all the while, and they were very naturally at a loss to understand her singular gaiety. This period of transition gradually became shorter, and although the loss of consciousness was complete, it was so short that Félida could conceal it wherever she happened to be. Certain signs known to her, such as pressure in the temples, warned her of the approach of these periods. As soon as she felt them coming she pressed her hand to her head, complained of dizziness, and after an almost imperceptible length of time she passed into the other state. She could in this way conceal what she called an *infirmity*. But this concealment is so complete that among those that surround her her husband is the only one who is aware of her condition. The variations of disposition are very marked. In the period of attack or of the "second condition" she is more haughty, more heedless, more preoccupied with her toilet, and, moreover, she is less laborious, but much more sensitive. It

seems as if in this state she has greater affection for those around her.

In her normal state she is downcast almost to despair. Her condition is really extremely sad, for every thing is forgotten—business, important circumstances, acquaintances made, information given. It is a vast blank, impossible to fill up. Memory only exists for facts which have happened in the similar state. Félida has been a mother eleven times. This has always taken place during her normal state. If she is asked point blank for one of the dates she tries to remember, but makes a mistake of almost a month.

Some one had given her a little dog, which followed her and caressed her constantly. After a while a period or normal life occurred. On her awaking in this life the dog caressed her, and she repelled him with horror; she did not know she had ever seen him. She thought it was a lost dog that had strayed into her house by mistake.

Her emotions also differ in the two conditions. Félida has become indifferent, and shows little affection for those around her; she revolts against the natural authority that her husband has over her.

"He always says 'I will have,'" says she. "That does not suit me; it must be that in my other state I have permitted this habit. What distresses me," she adds, "is that it is impossible for me to have any secrets from him, although there is nothing in my life to conceal. But if I wished to, I could not do it. It is certain that in my other life I tell him all I think." And, further, her disposition is more proud and more obstinate.

The most distressing thing to her is the comparative inability occasioned by the losses of memory, especially

when it affects her business. "I make mistakes in the value of provisions, whose cost price I do not know, and am forced to a thousand subterfuges to prevent being taken for an idiot."

It has several times happened that she has gone to sleep in the evening in her normal state and in the morning has wakened in the attack, without either herself or her husband being aware of it, the transition having taken place in her sleep.

Félida sleeps like every one else, and at the usual time, only her slumber is always troubled by dreams or nightmares; moreover, it is influenced by physical pain, so that she often dreams of slaughter houses and of murder. She frequently thinks she is laden with chains or bound with ropes that crush her limbs. This is accounted for by ordinary muscular pains which take this form.

It is well known what part habit plays in life. Does Félida retain the habits acquired in the second condition, during the short periods of the normal state, when everything seems to be entirely forgotten? M. Azam has noticed that during the short periods of the normal state Félida has forgotten the hours for meals; but to take her nourishment every day at the same time seems to be a habit.

In 1877 Félida was thirty-four years old. She lived at home with her husband and the two children who were left to her. From force of circumstances she had returned to her old trade of seamstress and conducted a little shop. Her general health was wretched, for she suffered from neuralgia, hæmorrhages, contractures, and local paralysis. But she was very courageous, nevertheless, especially in the second condition, when her pains were less severe.

The period of transition by which Félida enters into the second condition becomes shorter and shorter. Although she has become more skilful at concealing it, the loss of consciousness is complete. "In these last periods, says M. Azam, at my request her husband proved, as I did formerly, that she was entirely unaware of all that was passing about her."

Her waking and her sleep are normal, and the incidents described occur without distinction in the two states.

As the second condition now constitutes almost the whole of Félida's life, various most unusual hysterical phenomena may be observed at leisure. I refer to spontaneous and partial congestion. At a given moment, from no known cause, and every three or four days, Félida feels a sensation of heat in some part of her body; this part swells and reddens. It is often in her face, and then the phenomena is striking; but the skin of the surface is too thick to allow an actual exudation of blood. Only once did an oozing of this kind take place during the night upon the skin of the occipital lobe, producing patches of blood.

In 1878 Félida is, at first sight, like every one else. Her appearance is so normal that, having become very skilful in concealing her amnesia and the troubles which accompany it, she succeeds admirably also in hiding an infirmity of which she is ashamed. She discharges her duties as seamstress and mother of a family to the satisfaction of all. Naturally of a strong constitution, she has only become thin from nervous pains and frequent hæmorrhages.

In her second condition she is very like everybody. Sprightly and naturally happy, she suffers little; her

intelligence and all her cerebral functions, including memory, are perfectly complete.

Sometimes, usually when she has had some trouble, she feels a kind of pressure in her head, a sensation which she recognises, and by which she knows that a change into the next state is coming. Then she *writes.* If she is asked why she does so, she replies: "How shall I manage if I do not write down what I have to do? I am a seamstress; I am constantly working by given measures; I should seem like an imbecile to all around me if I do not know the exact dimensions of the sleeves and waists that I am to cut out." Soon Félida entirely loses consciousness, but for so short a time (a fraction of a second) that she can conceal it from every one. She has scarcely closed her eyes before she comes to herself and continues her work without a word.

Then she consults her writing to avoid the mistakes she fears to commit; but she is to a certain extent another person, for she is utterly unaware of all that she has said, all that she has done, all that has happened during the preceding period, whether it has lasted two or three years. This other life is the normal state, the personality which characterized Félida when she was fourteen years old, and before she had her illness.

This period, which to-day only occupies a thirtieth or fortieth part of her life, differs from the preceding period only in respect to her character. Now Félida is morose, despairing; she is attacked by a deplorable intellectual infirmity, and experiences grief which drives her to despair and to a desire for suicide. Presently a transition period occurs, and our young woman comes into the second period again, which constitutes nearly her whole life.

One special fact, an inward drama, shows the extent of the separation that absence of memory causes between the two existences of Félida. In April, 1878, when she was in the second condition, Félida was certain that her husband had a mistress; she burst out into threats against her, and, seized by frightful despair, hung herself. But she planned carelessly; her feet overturned a table; the neighbours ran in and restored her to life. This terrible wrench did not change her state. She had hung herself in the second condition, and when she came to herself she was still in the second condition. "How happy I should be," said she two days later, "if I had my *crisis* [the name by which she designates the short periods of her normal life]; then at least I should not be aware of my misfortune." She is so ignorant of it, in fact, that during the following periods of her normal state, meeting the same woman, she overwhelms her with attention and proofs of friendship.

In 1882 Félida was almost always in the second condition; the normal life, with its characteristic loss of memory, only showed itself at intervals of from fifteen days to three weeks, and then lasted but a few hours. The transition periods, which only lasted some minutes, were reduced to some seconds, or to a duration so imperceptible that Félida, who did not wish any one around her to know of her disease, could completely conceal them. After fifteen days, a month, or two months, short periods of normal life appear, preceded and followed by imperceptible transitions. Their appearance is sometimes spontaneous, but it is more often induced by some annoyance, the spontaneous appearances invariably taking place in the night.

During the first years of her disease Félida's every-

day life was tormented by sorrowful manifestations of the most painful kind, and her disposition was sad, even gloomy and taciturn. This sadness was at one time so great that the patient attempted suicide, while, by contrast, the periods of the second condition was characterized by the absence of sorrow and by unusual gaiety. In short, Félida had at once two existences and two totally different characters. Gradually, either from the influence of years and the trials of life, or from some other cause, the second states, which have become almost her whole life, no longer present gaiety or lightness of mind, but the gravity and seriousness of ordinary life. It might be said that the two characters have become equalized, and have merged into each other.

Finally, in 1887, when Félida was forty-four years old, her condition was the same as in 1882, except that the periods of her normal life became less and less frequent.

In summing up, the following facts from the preceding observations should be borne in mind: The variation of personality shown by Félida is due to hysterical nervous conditions; that is indisputable. Félida has shown such a variety of hysterical phenomena—boils, hæmoptysis, changeableness of emotion, convulsions, and attacks of lethargy—that it is impossible to doubt it in this case. From time to time the mental condition of the patient changes; one might even say her personality. Yet the transition is not gradual, but always accompanied by loss of consciousness. At first there was profound slumber, during which the patient felt no stimulation. As time went on this sleep became shorter, but there was always a loss of consciousness which caused the abyss between the two existences.

It should be noted that there never were convulsions at the time of transition, although Félida had attacks of hysterical convulsions on other occasions.

When she wakes in the new condition the patient has become another person. Her disposition is changed. It was sad and morose during her normal condition, and it has now become more tender, gay, and affectionate; but, on the other hand, she is less active and less industrious. Her intelligence is more developed, and her feelings seem to be more refined (unfortunately, this important point has not been examined with sufficient care). A change of memory is added to the change of disposition during the second condition. Félida remembers all her states, and all the facts belonging to the two existences, her memory at this time showing the maximum range. Then at a certain time there suddenly occurs a new loss of consciousness similar to the first, the patient passes into the first condition again, regains her sad disposition and her activity, and at the same time shows a very curious loss of memory. She is unable to recall the facts belonging to her second condition, and we have already seen the numerous consequences, so painful for her, of these amnesic periods.

The distinction of the two mental conditions rests, then, on two principal elements—a change of disposition and a variation of memory. It is this which shows that Félida is really two moral persons, that she has really two egos. Her second ego is by no means feigned, nor invented from a purely literary desire to be striking; it is perfectly well formed, capable of contending with the first ego and even of replacing it, since we see the patient continuing her existence to-day with the second ego, which, at first accidental and abnormal, now constitutes the regular centre of her psychic life.

It remains, in closing, to indicate definitely the psychological problem based on Félida's history. Here are two mental lives alternating, without being confused; and each of these existences consists in a series of psychological events connected with one another. When Félida is in the first state she can remember the events of this state; on the other hand, it is impossible for her without assistance to recover the memory of events that belong to the second state. Why is this? This amnesia can by no means be explained psychologically by the well-known laws of association of ideas. According to these laws all memories can be stimulated by the influence of resemblance and contiguity. But we here see these two forces of association at fault. The memories of the second condition do not reappear during the normal condition, even when they should be called forth by certain adequate associations. We need no further proof than is found in the case of the little dog that Félida loaded with caresses during her second life and did not recognise in the first. I believe that it has not been sufficiently noticed how refractory this characteristic amnesia is to current theories of the association of ideas. It is a fact that between the two mental syntheses constituting the two existences of Félida the association of ideas has no play.

We shall often have occasion to repeat this remark. M. Dufay, of Blois, has published an observation similar to the one which we have just considered.* I quote the most interesting parts of it.

"About 1845 I began to see Mlle. R. L——'s attacks of somnambulism, and for twelve years I had occasion, almost daily, to study this singular phenome-

* Revue Scientifique, July 15, 1876.

non. Mlle. R. L—— must have been at that time about twenty-eight years of age. She was tall, thin, and had brown hair; her general health was habitually good, but her nervous sensitiveness was excessive. She had been a somnambulist from her infancy. Her childhood was spent in the country with her parents; afterward she was successively governess and companion in several rich families with whom she travelled a great deal; then at last she preferred a settled life, and applied herself to her needle.

"One night, while still with her parents, she dreams that one of her brothers had just fallen into a pond in the neighbourhood. She springs from her bed, goes out of the house, and jumps into the water to help her brother. It was in the month of February, the cold chilled her, she woke in terror, and trembled so that all her efforts were futile; she would have perished if some one had not come to her assistance. She was confined to her bed by fever for fifteen days. After this event the attacks of somnambulism ceased for several years. She talked, laughed, or cried in her sleep, but did not leave her bed. Then gradually the nocturnal wanderings recommenced, at first rarely, then more frequently, and at last they came to be of daily occurrence.

"I might fill a volume with an account of the deeds and exploits performed by Mlle. R. L—— during this active sleep. I will confine myself to the facts which are necessary to make us fully cognizant of her condition.

"I copy from my notes: Her mother is the frequent object of her dreams. She wishes to go to the country, packs in great haste, 'for the carriage is waiting,' runs to say good-bye to the people in the house, not without

shedding a great many tears, astonished to find them in bed. She rapidly descends the staircase, and does not stop until she reaches the street door, the key of which she has taken the precaution to hide, and near which she sinks down in distress; and for a long time resists any one who persuades her to rise and go back to bed, complaining bitterly (of the tyranny to which she is a victim). She ends, but not always, by returning to bed, usually without entirely undressing, and it is this which tells her on awaking that she has not slept quietly, for she has no memory of anything that has happened during the attack.

"That is somnambulism, as it is frequently observed. It is a dream in action begun during the normal sleep, and ending by an awakening either spontaneous or provoked.

"But that is not what usually happens in Mlle R. L——'s case.

"I copy again: It is eight o'clock in the evening, several women are working around a table on which is placed a lamp. Mlle. R. L—— directs the work, and herself takes an active part, chatting gaily. Suddenly one hears the noise of her forehead falling sharply on the edge of a table; her shoulders are also bowed. This is the beginning of the attack.

"She straightens herself after a few seconds, snatches her eyeglasses spitefully, and continues the work which she had commenced. She no longer needs the glasses which considerable nearsightedness renders necessary in her normal state, even though she places herself so that her work is less exposed to the light of the lamp. If she needs to thread her needle, she throws both hands under the table, feeling in the dark, and in less than a second succeeds in putting the silk through the

eye—a thing which she does with difficulty in her normal state, even when aided by eyeglasses and a bright light.

"She chats while she is working, and a person who has not seen the beginning of the attack would notice nothing unusual except that she speaks differently when in a somnambulistic state, i. e., ungrammatically, using *me* for *I*, as children do. For instance, she says 'When me is stupid.' That means, when I am not in a state of somnambulism.

"Her intelligence, ordinarily above the average, reaches remarkable development during her attack; her memory becomes extraordinary, and she can relate the most trifling events of which she has heard at any time whatever, whether the facts took place during her normal state or during an attack of somnambulism.

"But of these memories all those relating to the period of somnambulism are completely hidden as soon as the attack is over, and I have often astonished Mlle. R. L—— even to stupefaction by recalling to her certain facts, entirely forgotten, about the 'stupid girl,' to quote her own expression, with which the somnambulist had acquainted me.

"The difference between these two manners is such that it could not be affected.

"Mlle. R. L—— was annoyed by her abnormal personality up to the time of her menopause."

We see that Mlle. R. L—— has two personalities; she is even conscious of this dualism, for she speaks of the other in the third person, and she ignores in her first state what the other has done in the second state. The remainder of this observation has no other interest than that of being a repetition, and consequently a confirmation of the case of Félida.

II.

The case of Louis V——, an hysterical male patient who has shown a curious succession of personalities, has been frequently cited during the last few years. We quote the following extracts from the work of Bourru and Burot.*

"The case of Louis V——," they say, "is already known to science. M. Camuset † was the first to tell of it, and afterward M. Ribot, M. Legrand du Saulle, and P. Richer drew attention to it. J. Voisin ‡ has made two important notes on this patient.

"He was born at 6 Rue Jean-Bart, Paris, on the 12th of February, 1863. His mother was hysterical and his father unknown. Part of his childhood was passed at Luysan, near Chartres. His mother maltreated him and he became a vagrant. He seems to have had, from his earliest years, attacks of hysteria, accompanied by spitting of blood and momentary paralysis. On the 23d of October, 1871, he was sentenced for stealing to serve in a house of correction until he was eighteen years of age. He was sent to the colony of the Douaires, then sent on to the agricultural colony of Saint-Urbain (Haute-Marne), where he remained from September 27, 1873, until March 23, 1880. He was busy several years with agricultural duties, and received primary instruction at the same time, from which he learned a good deal, for he was docile and intelligent. One day while he was in a vineyard raking up the branches, a viper coiled itself around

* Changements de Personnalité, p. 19.

† Camuset, Annales Médico-psychologiques, Janvier, 1882.

‡ J. Voisin, Archives de Neurologie, Septembre, 1885, p. 212.

his left arm without stinging him. He was extremely frightened, and that evening when he had returned to the penitentiary he fainted and began his attacks. The attacks succeeded one another until finally his lower limbs became paralyzed, his mind remaining unimpaired.

"In March, 1880, he was transferred to the asylum of Bonneval (Eure-et-Loir). There, it is stated, the patient had an open and sympathetic countenance; his disposition was gentle, and he was grateful for the trouble taken for him. He related the history of his life, including the most minute details, even his thefts, which he deplores, and of which he is ashamed. He laid the blame on his desertion and on his companions, who exerted evil influences over him. He deeply regretted his past and declared that in the future he would do better. He knew how to read and write a little. It was decided to teach him a trade consistent with his infirmity—paraplegia. Every morning he was carried to the workroom of the tailors, was seated on a table, where he naturally assumed the proper position, thanks to his paralyzed and contracted lower limbs. At the end of two months V—— knew how to sew quite well; he showed much interest in his work, and his progress gave entire satisfaction. One day he was seized by an attack that lasted fifty hours, after which his paralysis was found to have entirely disappeared. On reviving V—— wished to rise. He asked for his clothes, and succeeded in dressing himself, although doing it very clumsily; then he took several steps in the room; the paralysis of the limbs was gone.

"When dressed, he asked to go with his comrades to the farm. It was at once seen that he believed he was still at Saint-Urbain, and that he wished to resume

his usual occupations. In fact, he had no memory whatever of his attack, and did not recognise any one, not even the physician and hospital attendants or his companions in the dormitory. He would not admit that he had been paralyzed, and said they were making fun of him. It was thought to be a transient state of unbalance, not unlikely after a severe attack of hysteria; but time passed and memory did not return. V—— very well remembers that he was sent to Saint-Urbain; he knows that he was recently frightened by a snake; but from that moment there is a blank. He remembers nothing more. He has not even the feeling that time has elapsed.

"It was believed, naturally, that he was shamming, that there would be a return of hysteria, and every means was employed to make him contradict himself, but without success. For this reason he was taken, without being told where he was going, to the tailors' workroom. Some one walked beside him, taking care not to influence him. As for the direction to follow, V—— did not know where he was going. When he reached the workroom he appeared not to know the place at all, and said that he had never been there before. He was shown the clothing in which he had sewed the rough seams when he was paralyzed; he laughed doubtfully, but at last resigned himself to believe it.

"After a month of experiments, observations, and proofs of every kind, they were convinced that V—— remembered absolutely nothing. His disposition was also changed. He was no longer the same person; he had become quarrelsome and greedy, and he answered rudely. He had not liked the wine and had usually given his allowance to his comrades, but now he stole

theirs. When he is reminded that he used to steal but that he ought not to begin to do so again, he gets haughty and says that if he did steal, he has paid the penalty since he has been put in prison. He was given occupation in the garden. One day he made his escape, carrying off his effects and sixty francs belonging to a hospital nurse. He was captured five miles from Bonneval just when, after having sold his clothes to buy others, he was preparing to take the train for Paris. He did not allow himself to be taken easily, but fought and bit the keepers sent to search for him. Brought back to the asylum he was furious, screamed and rolled on the ground, and had to be confined in a cell.

"During the rest of his stay at Bonneval he continued to show some signs of neurosis, convulsive attacks, anæsthesia, and transient contraction. He left the asylum on June 24, 1881, seemingly cured.

"He spent some time at his mother's at Chartres; then he was sent to a large agricultural proprietor in a suburb of Màcon. There he fell ill, remained a month at the Hôtel Dieu at Màcon, and was transferred to the asylum of Saint-George, near Bourg (Ain), on September 9, 1881.

"During his eighteen months' stay in this asylum he was subject to attacks that were irregular—sometimes very severe, sometimes slight, sometimes occurring in series. At times he was exalted like a general paralytic, and again almost stupid and imbecile. In some circumstances he did not flinch before any responsibility, obeying the most dangerous instincts and impulses, knowing how to cleverly conceal them in his capacity as madman, and with sense of responsibility resulting from his confinement in the lunatic asylum. V—— left Saint Georges April 28, 1883, improved in

health, and provided with a sum of money to return to his own country.

"He reached Paris—how he did so is not known. He was admitted successively into various institutions; finally, at Sainte-Anne and at Bicêtre, where, on August 31, 1883, he entered the service of M. J. Voisin, who recognised him as one of M. Camuset's patients, but without knowing what had occurred between Bonneval and Bicêtre.

"From August, 1883, to January, 1884, his attacks were rare, and observed only by attendants. On January 17, 1884, there was a new and very violent attack, which was repeated on following days with paroxysms of pain in the thorax, and alternate paralysis and contraction of the left and right side. On April 17, after a light attack, the contraction of the right side disappeared. He went to sleep with his limbs folded, his hands behind his head, and slept quietly. In the morning when he woke he asked the nurse for his clothes. He wanted to go to work. He was astonished to find that his clothes were not on the foot of his bed—he thought that some one had hidden them as a joke. He improved until the 26th of January (the day the contraction made its appearance). He was taken before the head of the department. He was amazed when he was told that the leaves were on the trees, that the calendar showed it to be the 17th of April, and that the hands of the service had been changed. His speech was normal. He did not remember that his right side was contracted. He walked feebly and swayed somewhat when he wished to stand. The dynamometric pressure of the right hand was more feeble than that of the left. The cuticular hemianæsthesia continued.

"He was calm during the following months and

walked in the ward. On June 10th he had a series of attacks followed by a return of the contraction of the right side. He stayed in bed several days, and remained in the same state from January until April. He improved on April 17th. He spoke ungrammatically, as formerly. The next day the contraction disappeared, and the patient returned to his original state.

"During the last six months of the year 1884 V——'s condition showed no new phenomenon. His disposition changed. He was docile during the period of contraction, but at other times he was undisciplined, a tease, and a thief. He worked irregularly. The attacks were frequent. The contraction did not once return, but the hemianæsthesia was branded indelibly upon him. He retained some delirious ideas. On January 2, 1885, after a scene of provoked somnambulism, followed by an attack, he escaped from Bicêtre with stolen clothing and silver belonging to a hospital nurse—an event similar to his flight from Bonneval.

"He remained some weeks in Paris with an old friend from the asylum, whom he had happened to meet. On the 29th of January, 1885, he enlisted in the marines, and reached Rochefort the 31st of January. During his stay at the barracks he committed thefts. Brought before the council of war he was discharged the 23d of March, 1885, and on the 27th of March sent to an institution. After his admission he was seized by a series of attacks of hysterical epilepsy. The 30th of March a contraction of the whole of the right side showed itself, but disappeared at the end of two days; but it left him paralyzed and unconscious of the entire right half of his body."

The case of Louis V—— is certainly the most complex and the richest in details of any that we have,

although it includes some obscure features. One important fact is clear, that at certain times Louis V—— suddenly loses his memory of important periods of his former existence, and comes into a new psychological state with a total change of character, and a different distribution of feeling and movement in his body. The new state can then be distinguished from the former by three chief characteristics: first, the condition of the memory; second, the state of his personality; third, the state of sensibility and movement. This last point is one of those which serves to establish the orginality of the observation of this patient. With the other hysterical patients whose cases have been reported so far, the change of sensibility which accompanies the change of the psychological state has never been studied. M. Azam, in his report of the case of Félida, hardly refers to it; he alludes to it briefly, whereas a systematic study would have been desirable. The case of Louis V—— thus fills an important blank in our information. In all probability his case is not exceptional in this respect, and, therefore, all patients having "second states" like his must also, like him, have peripheral sensory modifications which signalize the transition to a new state. This is logically necessary. From the moment that the character is modified and the span of memory is changed, it is natural to expect that the ability to perceive sensations should be equally affected. It is the contrary that should surprise us. Authors have availed themselves of these variations of sensibility in order to make a series of experimental researches on their patients; they have succeeded in calling forth at will, to some degree, some one of the personalities of the patient—a thing which had not been

done before to the same extent or in a methodical way. Finally, it is in this fact that the great interest of this observation lies, and from it we glean the latest information on this subject. I shall consider it again in the part of this book that is devoted to experimental phenomena.

It remains to define and classify the pathological state of V——. This case we have compared to that of Félida. This comparison is justified by many of the facts, and the analogies are striking. There are changes of psychological state shown in the general disposition and in memory. These states are undoubtedly more numerous with V—— ; as many as six can be counted, each having its own memory, as experiments on the patient have shown ; but this question of numbers has no general importance, and as a matter of fact Félida had at least three distinct states.

M. Proust has recently published a curious case of automatic walking by a hysterical patient. I give his observation :

" Émile X—— is thirty-three years old. His father is eccentric and a drunkard. His mother is nervous, and a younger brother must be classed as backward. He, on the contrary, is of normal intelligence. He did very well in classical studies, and even won some distinction in academic examinations. After studying medicine for some months he passed to the study of law, took his degree, and has for several years been registered on the rolls of the lawyers of Paris.

" Émile X—— has shown the most marked symptoms of hysteria (crises, disorders of sensibility, movement, etc.). He can be hypnotized almost instantaneously. It is only necessary for him to gaze at a given point in space, to hear a moderately loud noise, to ex-

perience a sharp and sudden sensation, to fall immediately into the hypnotic sleep. One day he was in a *café* in the Place de la Bourse. He looked at himself in the glass and immediately fell asleep. Astonished and frightened, the people with whom he happened to be took him to the Hôpital de la Charité, where he was awakened.

"Another time, while he was arguing a case in court, the judge looked at him steadily. He stopped short, fell asleep, and was unable to resume his speech until one of his colleagues, who knew his failing, awoke him.

"But that is not all.

"At certain times Émile X—— completely loses his memory. Then all his recollections, the most recent as well as the oldest, are obliterated. He has entirely forgotten his past life. He has even forgotten himself. Nevertheless, as he has not lost consciousness, and as during the whole duration of this sort of state or second condition—which may last for several days—he will have, as Leibnitz says, 'the apperception of his perceptions,' a new life, a new memory, a new ego commence for him. So he walks, gets on the cars, pays visits, makes purchases, engages in sports, etc.

"When suddenly, by a kind of awaking, he returns to the first condition, he is ignorant of all that has happened during the days that have just passed—that is to say, during the whole time of the second condition.

"Thus, on the 23d of September, 1888, he had an altercation with his stepfather. He is strongly impressed by this altercation, the memory of which he keeps vividly in mind. But he is in ignorance of what he has done from this date, September 23d, until the middle of the following October. At this latter date

—that is to say, three weeks after the quarrel with his relative—he is again found at Villars-Saint-Marcelin (Haute-Marne). He does not know how he has lived or where he has been. All that he does know concerning that time he has since learned by reports from different sources. He has been told that he went to the curate at Villars-Saint-Marcelin, 'who thought him queer'; that he went to make a visit at one of his uncles, an ecclesiastic in Haute-Marne, and that there he had destroyed various objects, and torn books and even manuscripts belonging to his uncle. He has since found out that he contracted a debt of five hundred francs during his perigrinations, and that he had been brought before the court of Vasey for stealing, and found guilty.

"Still another episode:

"On the 11th of May, 1889, he breakfasted in a restaurant in the Latin Quarter. Two days afterward he found himself in a square at Troyes. What had he done during those two days? He had not the remotest idea. All that he remembers is, that on coming to himself he discovered that he had lost his overcoat and his pocketbook containing two hundred and twenty-six francs.

"In the observation of Émile X——, as in similar observations, the two following points should be particularly remarked:

"1. A break in the continuity of the phenomena of consciousness, although the individual during this break goes, comes, and acts in conformity with the habits of his daily life.

"2. If there is discontinuity between the phenomena of consciousness in the period of the second condition and those of the normal life, there is, on the con-

trary, continuity between the phenomena of consciousness of the periods of the second condition.

"Thus, Émile X—— in his normal state is ignorant of what he has done during the periods of automatic walking; but it is enough to replace him in the second condition by plunging him into the hypnotic sleep, when he immediately remembers the minutest details of his peregrinations. Awake, he does not know what he has done from the 23d of September until the 15th of October; asleep, he relates the incidents of his journey. The five hundred francs he lost at gambling. He tells the sums he has lost, and at what game. He gives the name of his partner. He tells all that he has done and said at his friend the curate's and at his uncle the bishop's.

"The same thing holds true regarding his flight to Troyes. During the induced sleep he says: 'The 17th of May, on coming out of the restaurant, I took a carriage and drove to the Great Eastern depot. I boarded the 1.25 train and arrived at Troyes at 5.27. I went to the Hotel du Commerce, room No. 5. I put my overcoat, which contained my purse, on the back of an armchair. I next went to a *café* on the Place Nôtre Dame; then I came back and dined at half-past six. I called on a merchant of my acquaintance, M. C——, and I spent the evening with him until nine o'clock. Then I returned and went to bed. I rose the next morning at eight o'clock and breakfasted with M. C.——. I left him after breakfast, turned into the Rue de Paris, and began to feel ill. I then appealed to a policeman, who brought me to the superintendent of police, and from there to the hospital at Troyes, where I was wakened.'

"To make the information complete I may add the following detail:

"After having learned from the sleeping patient the place where he had left his overcoat, we advised him, when he awoke, to write to the Hotel du Commerce. The next day but one, to his great astonishment, he received his overcoat and his purse with the two hundred and twenty-six francs which it contained. These objects, as I said, had been lost more than six months, and our patient needed money.

"Émile X—— had been condemned by the court at Vassy for theft committed during his period of automatic walking. The judgment was annulled when the circumstances under which the offence was committed were known.

"More recently Émile X—— has again been accused of swindling. He tried to borrow a trifling sum from an official in the law court by misrepresentations about his property.

"In consequence of a report from Messrs. Motet and Ballet a discharge was granted him."

This observation of M. Proust's closely resembles that of Félida—change of disposition during the second states followed by loss of memory. But all this should be studied with the greatest care, and a large number of details are lacking. We note in passing an interesting point, which we do not find in the preceding observations, viz., when thrown into the hypnotic sleep Émile X—— recalls the memories of the second state.

An observation published by Weir Mitchell should be added to those we have just read; it also constitutes an interesting repetition of the case of Félida. It is about a young girl, twenty years old, of a sad, melancholy, and timid disposition. This person was seized by a sleep which lasted more than twenty hours. When she awoke it became apparent that she had totally for-

gotten her previous existence, her parents, her country, the house where she lived. She might be compared, says the author, to an immature child. It was necessary to recommence her education. She was taught to write, and wrote from right to left as in the Semitic languages.

She had only five or six words at her command—real reflexes of articulation which were, to her, devoid of meaning. The labour of re-education, conducted methodically, lasted from seven to eight weeks. Her character had experienced as great a change as her memory; timid to excess in the first state she became gay, unreserved, boisterous, daring even to rashness. She strolled through the woods and the mountains, attracted by the dangers of the wild country in which she lived. Then she had a fresh attack of sleep, and returned to her first condition; she recalled all the memories and again assumed a melancholy character, which seemed to be aggravated. No conscious memory of the second state existed. A new attack brought back the second state, with the phenomena of consciousness which accompanied it the first time. The patient passed successively a great many times from one of these states to the other. These repeated changes stretched over a period of sixteen years. At the end of that time the variations ceased. The patient was then thirty-six years of age; she lived in a mixed state, but more closely resembling the second than the first; her character was neither sad nor boisterous, but more reasonable. She died at the age of sixty-five years.*

I must here close the catalogue of observations.

* Cited by William James, Psychology, i, p. 383.

Those that have been given, apart from some divergence in details, are remarkably similar, and others that we might add would teach us nothing new. Not that everything has been said about these pathological cases; I believe, on the contrary, that there is every reason to pursue the study further, and suspect that the second state presents a great number of interesting psychological characteristics. One finds, unfortunately, little light thrown on this point by the observations published up to the present; they seem to be almost copied from the same model, that of Félida.*

In general, observers have only noted two different conditions of existence in their subjects; but this number two is neither fixed nor prophetic. It is not, perhaps, even usual, as is believed; on looking closely we find three personalities in the case of Félida, and a still greater number in that of Louis V——. That is sufficient to make the expression "double personality" inexact as applied to these phenomena. There may be duplication, as there may be division into three, four, etc., personalities.†

I am persuaded that the alternations and successions of personality in the case of hysterical patients is by no means exceptional. What really is exceptional is to find typical subjects like Félida and Louis V——, whose variations were so marked as to strike uninstructed

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* See observations by Myers, Proceedings of the Society for Psychical Research, 1870, p. 230, and Ladame, Rev. de l'hypn., January 30, 1888, etc. [See also the case reported by Dana, Psychological Review, I, p. 570.—Ed.]

† It has been attempted to explain the variations of personality by the duality of the cerebral hemispheres. M. Ribot has refuted this odd conception in a manner which seems to me to be decisive.

minds. It may even be possible that by close attention to hysterical patients many cases totally at variance with the preceding ones might be found. In any case, the succession of distinct personalities must exist in some degree in many cases. The phenomena ought to be explained, not by gross symptoms, but by amnesia and changes of character recalling in kind those of Félida and Louis V——. These symptoms may be systematized and attached to certain periods of life. They are symptoms that must be *sought for*, as Lasègue says, in speaking of anæsthesia.

We have until now been occupied with cases of hysteria. All the patients whose cases we have reported have been indisputably hysterical. The question arises whether apart from this disorder analogous divisions of consciousness and personality are to be met with.

If the state of memory is taken as a sign of these divisions—and it is always easier to verify it exactly than changes of character—the question must be answered in the affirmative. We find in very diverse conditions fragments of psychological life, each of which possesses a memory. We mean by this that these states are not remembered in the normal life, but that the return of the state recalls the memories of its previous manifestation, so that the person remembers all the facts that had been forgotten during the normal life.

Occasionally, the existence of a memory peculiar to these second states shows itself in a slightly different and more elementary form; the subject always recommences the same actions. Examples of similar psychological changes are known in dreams, intoxication by ether, hasheesh, alcohol, etc., in recurrent mania and

epilepsy. In the case of some epileptic patients there even exists a double psychological life presenting the same characteristics that we have seen in hysteria.*

* Medical Bulletin, 1889, No. 18.

CHAPTER II.

SPONTANEOUS SOMNAMBULISM—(CONTINUED).

I.

SPONTANEOUS somnambulism may present, in the case of hysterical patients, a slightly different character from that which we have just described. In all the observations that we have cited up to the present the second state of the subject has certain general points in common with the first, considered as the normal state. The subject's mind is alive to all ideas and perceptions; he is capable of living his normal life—in short, he is not delirious. It has already been remarked that subjects of this kind, to an unprejudiced observer, appear normal; and they are found to be in the second state without previous symptoms or warning of any kind.

It is not always so, however. We have seen that in circumstances a little different from those which we have studied the psychological character of the subject in the second state is totally different from that of the first. He no longer lives his usual life; he is dominated by an idea, or by a group of ideas, which tends to give his whole existence a special orientation. He does not hear what is said to him when the words spoken have no connection with his fixed idea, and can not be incorporated with it; the objects which surround him make no impression upon him, or are not consciously

perceived, when they bear no relation to his habitual occupations.

These phenomena constitute, indeed, a variation of personality by a kind of spontaneous breaking up; they constitute the body of this chapter.

We have seen that the case typical of the first series of observations is that of Félida. It might be said that this new series also possesses a typical case, well known to-day, that of the sergeant of Bazeilles, published by M. Mesnet.* I shall reproduce this important observation at length:

"F——, twenty-seven years of age, sergeant in the army in Africa, in one of the battles fought at Sedan received a ball which penetrated his left parietal brain lobe. The ball, passing obliquely, made a wound from eight to ten centimetres long, parallel to the temporal suture, and situated about two centimetres below this suture.

"After receiving this wound F—— had still sufficient strength to overpower by a blow of his bayonet the Prussian soldier who rushed to smite him; but almost immediately his right arm was paralyzed, and he was obliged to abandon his weapon to escape from the fire of shot and shell which was raining down on the village of Bazeilles. He was able to go about two hundred metres, when his right leg became paralyzed in its turn, and he completely lost consciousness. It was not until three weeks later that F——, recovering the use of his senses, found himself at Mayence, where he had been brought by a Prussian ambulance.

"At this time hemiplegia of the right side was complete, the loss of movement absolute. Six months later

* De l'automatisme, etc. (Union Medicale, July 21 and 23, 1874).

he was brought to France and placed in various military hospitals of Paris, where he remained paralyzed about a year. Nevertheless he was fortunate enough to get over his paralysis, of which there is to-day no trace other than a slight weakness of the right side, scarcely perceptible to the patient and just appreciable by the dynamometer tests.

"From the time when the patient was still at Mayence, about three or four months after receiving his wound, he exhibited mental disturbances, shown by attacks at regular intervals, characterized especially by the partial deadening of the organs of sense and by cerebral activity at variance with the normal waking state. Since this time, even after the curing of the hemiplegia, these attacks have not ceased—always resembling each other even to the intervals of time (between them the average being fifteen to thirty hours) and the duration of the crisis (the average being also fifteen to thirty hours).

"The nervous troubles which we propose to study in the case of F—— have then undeniably a point of material departure—a fracture in the parietal region, with destruction of the bone in a place which it is easy to locate still, and on account of this fracture a brain lesion in the left hemisphere, as the hemiplegia of the whole of the right side of the body for more than a year proves. What caused this brain lesion? Probably a local inflammation or an abscess in the nervous substance; for the external wound and the paralysis were cured almost simultaneously, after lasting a year, and the feelings and movement so long absent from the right side of the body resumed their normal condition. To-day he has a simple *functional trouble*, which made its appearance when the brain was

physically affected, and still persists, although all the physiological functions are re-established.*

"For four years F——'s life has shown two essentially distinct phases, one normal, the other pathological.

"In his ordinary state F—— is a man of sufficient intelligence to provide for himself and to gain a livelihood. He has been a clerk in various houses, a singer in a *café* in the Champs-Élysées, and his official acts as sergeant, when he was in the regiment, revealed certain aptitudes which attracted notice from his superiors. Since he came into my department in the hospital he has shown himself obliging, friendly with the other patients, and his conduct has given no occasion for any serious rebuke. His health leaves nothing to be desired, and his habit of life is regular.

"The point of interest which this patient presents is found in the pathological phase which we are about to study, and in the confusion which suddenly befell the exercise of his intellectual faculties. The transition from the normal state to the diseased state is made in an instant, almost unconsciously. His senses are closed to stimulations from without, the external world ceases to exist for him, he no longer lives except in the narrow limits of his exclusively personal life, he no longer acts except by proper stimulations, and by automatic movements of his brain. Although he no longer receives anything from without, and though his personality is completely isolated from the sphere in which he is placed, he is seen to go and come, to attend to his affairs, and to act as if he had full power over his senses

* The case of F—— may be classified as traumatic hysteria (see G. Guinon, Progrès Medical, 1891, No. 20).

and intellect, to such a degree that a person ignorant of his condition would pass him on his walks, meet him on his way, without suspecting the curious phenomena which he presents.

"His gait is natural, his attitude calm, his countenance peaceful, his eyes wide open, the pupils dilated, his forehead and eyebrows contracted, and he has an incessant movement of nystagmus, betraying a state of suffering in his head. He is continually chewing. If he walks, he goes among those near whom he lives and whose tastes he knows. He acts with all the freedom of demeanour that he has in his usual life; but if he is placed in another sphere where he does not know the people, if obstacles obstruct his way, he stumbles a great deal, stops at the slightest contact, and feeling the object with his hands, explores the outlines in order to pass around it. He offers no resistance to movements which one may give him. Even though he is stopped, made to change his direction, hurried, or hindered, he allows himself to be managed like an automaton, and continues his movements in the direction which has been given him.

"While his attacks last his instincts and appetites operate just as in health; he eats, drinks, smokes, dresses, walks, undresses in the evening, and retires, all at the usual hours.

"*Under what influence, we may ask, are these acts performed? Are they provoked by real needs, or by organic sensations; or, rather, are they not themselves quite automatic, the simple result of waking habits continued in sleep?* I should be disposed to accept this last interpretation,* for each time that I have seen

* I shall show later that this interpretation is probably not exact, and that F—— is not unconscious during his attack.

the patient eat he ate gluttonously, without discrimination, scarcely chewing his food, swallowing everything set before him without ever getting enough—a sure proof that he was not led on by appetite. In the same way he drank all that was given him—*vin ordinaire*, quinine, water, asafœtida—without giving any sign as to whether it was agreeable, painful, or indifferent to him.

"An examination of the general sensibility and of the special sensibility of the senses reveals a considerable disturbance. The general sensibility of the skin and muscles is absolutely dead; one can prick the skin of the different parts of the body, hands, arms, feet, legs, chest, and face with impunity. The patient felt no sensation also if one drew a pin or knitting needle across the skin or plunged it deep into the muscles.

"It is the same with experiments made with a strong electric current. The patient is insensible to the action of the current passed through the arms, chest, and face, although the electric stimulation produces energetic contraction of the muscles.

"General sensibility is lost.

"Muscular sensibility is retained.

"Hearing is completely obstructed. He receives no impression whatever of noises around him. The auditory passage is, in its whole extent, insensible to tickling and pricks.

"Taste no longer exists. He drinks water, wine, vinegar, asafœtida indiscriminately. The mucous membranes of the mouth and tongue are insensible to pricks.

"No odour, good or bad, is perceived by the patient, neither of vinegar nor of asafœtida. The whole extent of the mucous of the nasal chambers is insensible.

A foreign body can be forced through the nasal chambers as far as the soft palate without producing tickling or sneezing.

"Sight, like the other senses, is closed to external impressions, but perhaps less completely. The patient seemed to us, on several trials, to be not altogether insensible to effects from brilliant objects; but the sensations which they cause in him give him such confused notions that he immediately summons touch to his aid to explore their form, size, outlines, etc., more fully.

"Touch is of all the senses the only one which *persists and puts the patient in relation with the external world.* The delicacy with which he moves his hands over objects, the use which he makes of touch on a thousand occasions when we were present, attest a refinement and acuteness of this sense above the normal average.

"The isolation in which F—— finds himself placed is, then, the result of a considerable disturbance in the exercise of his nervous functions. He is a patient with whom brain action costs him temporarily the exercise of the general and special sensibilities which place man in his position of constant *rapport* with external things. He is attacked by a functional trouble which presents all the characteristics of neurosis, and which, although very singular, very exceptional in its manifestations, is not, for that very reason, without example and without precedent in the history of diseases of the nervous system.

"The nervous trouble with which F—— is affected is only shown by attacks or paroxysms, which are of short duration in comparison with the intermediate period. The first of these attacks dates back to the

early months of the year 1871, when he was still a prisoner in Germany, and had hemiplegia in his right side. At this time the attacks returned at shorter intervals, and by reason of them the wound in his skull remained open for a little more than a year. Reckoning from that time, they then occurred at longer intervals, and the intermediate period, which was originally from five to six days, became on an average from fifteen to thirty days. For about two years the intervals have been the same, unless some deviation from rule or some excess of the patient has occurred to hasten their return. At all events, they always resemble one another, and bear the stamp of unconscious activity. The beginning of the attack is preceded by a certain uncomfortableness, a weight on the forehead, which the patient compares to the pressure of a ring of iron; he feels the effects of it even after the attack has passed, and he still complains several hours afterward of heaviness and weakness in his head. The transition from health to disease is made rapidly, in a few minutes, almost imperceptibly, without convulsions, without a crisis of any kind. *He jumps from one to the other without advancing through the slow stages of lapsing consciousness and judgment that one finds at the approach of sleep; the being who is conscious, responsible, in full possession of his senses, is an instant later only a blind instrument, an automaton obedient to the unconscious activity of his brain.* He acts with a show of liberty which he does not possess; he seems to will, but his will is unconscious and powerless to overcome the slightest obstacles which oppose his movements.

"All the actions which he performs, all the activity which he shows during his attack, are nothing more than the repetition of his waking habits. He is as in-

capable of inventing as of imagining; and yet there is one act which we shall study later by itself—a singular tendency which showed itself from the first attack, when he was still a soldier, and which was each time reproduced under the same conditions, and seemed the special feature of his disordered state—*the irresistible desire to steal, or rather to get hold of any objects which fall in his way; these he takes indiscriminately and hides wherever he happens to be.* The necessity of stealing and concealing is such a dominant fact with this patient that, after it once appeared in the first attack, it continued to show itself in subsequent attacks. He considers everything worth taking, even the most insignificant things; and if he finds nothing on his neighbour's table, he hides objects which belong to himself, such as watch, knife, pocketbook, etc., with a great show of mystery, even when a large company of people surround and watch him.

"The entire duration of the attack constitutes a period of his existence, of which he has no memory in his waking state. The forgetfulness is so complete that he expresses the greatest surprise when he is told what he has done. He has no idea, not even the vaguest, of the time, place, movement, experiments of which he has been the object, nor of the different persons who have been present.

"The separation between the two phases of his life —health and sickness—is then absolute!

"Let us come now to the psychological study of this man, and interpret the facts which occur during the attack, without, however, neglecting the details gained from daily observation, and which we shall consider later on in another part of this memoir.

"General sensibility is, as we have said, completely

obliterated. Muscular sensibility is retained. Hearing, smell, taste, are closed to stimulations from without. Sight conveys vague impressions only without recognition. Touch is retained, and even seems to acquire an exaggerated acuteness and refinement.

"And it is with a view to this great nervous perturbation that we have to determine the value and meaning of the actions that we are about to describe.

"F——'s activity during his attack is nearly the same as in his normal state, except that movement is less rapid. He walks with open eyes, looking steadily before him. If he is directed toward an obstacle he stumbles against it carelessly, and goes around it. A tree, a chair, a bench, a man or woman—they are no more to him than so many obstacles in which he sees no difference. The expression of his face is usually unmoved, impassive, and yet it occasionally reflects the ideas which present themselves spontaneously to his mind, or which the impressions of touch awake in his memory. His expressions, his gestures, his imitations have all ceased to have any relation with the external world; they are exclusively at the service of his new personality or, better still, of his memory. The following incident occurred when I was present:

"He was walking in the garden, under a clump of trees. His cane, which he had dropped a few minutes before, was placed in his hand. He felt it, passed his hand several times over the crooked handle, became attentive, seemed to listen, and suddenly called 'Henry.' Then, 'There they are; there must be at least a score of them. We two, we will settle them.' And then, putting his hand behind his back as if to take a cartridge, he went through the motion of loading his gun, lay down in the grass at full length, his head hidden by a

tree, in the position of a sharpshooter, and followed, with his gun at his shoulder, all the movements of the enemy, whom he believed he saw at a short distance. This scene, full of details, as given, was to each of us the most perfect indication of a hallucination provoked by an illusion of touch, which, giving to the cane the attributes of a gun, awoke in this man the memories of his last campaign, and reproduced the conflict in which he was so seriously wounded. I wished, in the attack occurring fifteen days later, to confirm this interpretation, and seemed to succeed completely, since the patient, being again placed in the same condition, repeated the scene exactly. So it was possible to direct the activity of the patient by a series of ideas that I managed to orginate, by putting in play certain impressions of touch, although all the other senses permitted no communication with him.

"All F——'s actions, all his expressions, are either the repetition of what he is accustomed to do every day or are provoked by impressions that objects produce on the sense of touch. It is only necessary to observe this patient for several hours to gain full conviction on this point. In following him in his peregrinations across the hospital at Saint-Antoine, M. Maury and I have witnessed a thousand such facts, accidentally produced, it is true, but all interesting from a psychological point of view.

"We were once at the end of a corridor, before a closed door. F—— passed his hands over this door, found the knob, seized it, and wished to open the door, but it resisted his efforts. He sought the lock and then the key but did not find it. He then passed his fingers over the screws which held the lock, tried to seize them and make them turn, and finally attempted to break the

lock. *All this series of actions testified to certain mental movements in relation to the objects before him.* He was about to leave the door, and turned in another direction, when I placed before his eyes a bunch of seven or eight keys. He did not see them, so I shook them noisily at his ear. He did not hear them. I put them in his hand; he seized them immediately, and tried them, one after the other, in the keyhole, without finding one that fitted. He then left the place and went into a patient's room, taking on his way several objects with which he filled his pockets, and came to a little table that answered the purpose of a writing desk in the room.

"He passed his hands over this table and found it was empty. While feeling it he came across the knob of a drawer with which he opened the drawer and *took a pen. Instantly this pen awoke in him the idea of writing*, for he immediately rummaged in the drawer, drew out several sheets of paper, then an inkstand, and placed them on the table. Then he took a chair and began a letter, in which he recommended himself to his general for his good conduct and his courage, and asked him to remember him when bestowing the medals for service.

"This letter was written very incorrectly, but it was similar in expression and spelling to what we had seen him do in his normal state. The experiment in which we had taken unconscious part led us forthwith to investigate to what degree the sense of sight co-operated to accomplish the result. The facility with which he traced the characters and followed the lines of the paper left no doubt of the use of vision in his writing; but to make the proof irrevocable, we placed at different times a thick plate of sheet iron between his eyes and the hand with which he was writing, so that all

the visual rays were intercepted. He did not immediately stop the line he had commenced, but traced a few more words; they were written, however, almost illegibly, with the downward strokes running into one another. Then he stopped without showing vexation or impatience. When the obstacle was taken away he resumed the unfinished line and went on.

"The sense of sight was then in full operation, and necessary for his spontaneous writing.

"It was easy for us to apply a second proof no less conclusive; while the patient was writing we substituted water for the ink he was using. The first time that he dipped his pen in it enough ink remained on it to make his writing still visible; but the second time the pen traced invisible characters, and he noticed it at once. He stopped, wiped the end of his pen, rubbed it on the sleeve of his coat, and again tried to write, with the same results. Then followed a new examination of his pen. He looked more closely than he did the first time, making a new and ineffectual effort. But he did not for an instant think of looking in the inkstand for the difficulty. His thought was incapable of spontaneity, and his sight, normal for the paper and the pen which he held in his hand, was useless with respect to the inkstand, which did not come into his thought. This second experiment confirms the first. Each shows us that sight really exists, but it seems to us that another fact follows, i. e., that the field of vision was exclusive and confined within a circle quite singular to this patient; that the sense of sight was roused only by touch, and that his use of it was confined entirely to the objects with which he was actually in contact by touch. Other observations will be cited later in support of this view; but before passing to

a new order of facts I wish to mention a very curious hallucination which was accidentally produced when F—— was occupied in writing.

"He had taken several sheets of paper to write on, and had about ten, placed one upon another. He was writing on the first page when it occurred to us to draw it quickly away. His pen continued to write on the second page, as if he had not perceived that we had removed the first; and he finished his sentence without pausing, and with only a slight movement of surprise. He had written ten words on the second sheet when we removed it rapidly as we had done the first, and he finished on the third sheet the line he had commenced on the preceding one, in exact sequence. In the same way we took away the third sheet, then the fourth. When we came to the fifth he signed his name at the foot of the page, although all that he had written had disappeared with the preceding sheets. We then saw him raise his eyes to the top of this blank page, read all that he had written, forming each word with a movement of the lips, then repeatedly trace with his pen on different points of this blank page—there a comma, there an *e*, there a *t*, attentively following the spelling of each word, which he corrected to the best of his ability; and each of these corrections corresponded to an incomplete word that we found in the same position, even to distance, on the sheets that we held in our hands.

"What meaning shall we attach to this singular phenomenon? It seems to me to have its solution in the hallucination state which creates an ideal image, and gives to this fancy or memory such a power of projection toward the periphery that it seems to be an external reality. It is hallucination as we shall find it

in sleep, in dreams, in cerebral disease. F—— rereads by memory the letter he has just written, although his eyes rest on blank sheets of paper. He gets false sensations of lines which do not exist, just as in one of the former experiments he had present before his eyes the Prussian soldiers whose movements he watched in order to surprise them at the proper time.

"When he had finished his letter F—— left the table, moved about again, went through a long ward, taking indiscriminately all the small objects that he passed on the way. These he put into his pocket or hid under bedspread, mattress, haircloth, easy-chair, or a pile of cloth. When he reached the garden he took from his pocket a cigarette case, opened it, took out a paper and his bag of tobacco, and rolled a cigarette with the dexterity of a man accustomed to do this. He felt for his box of matches, struck one of them, lighted his cigarette, threw the match, which was still burning, on the ground, stepped on it to put it out, and smoked his cigarette while walking up and down the length of the garden, without deviating in the slightest degree from his accustomed manner of performing these acts in his normal state. All that he had just done was a faithful reproduction of his ordinary life.

"When he had finished this first cigarette and was preparing to smoke another, I interfered and interposed obstacles. He had in his hand a new piece of paper ready to receive the tobacco. He felt in his pocket for the bag but did not find it, for I had stolen it. He searched other pockets through all his clothes, returned to his first pocket to search again, and his face expressed surprise. I reached out the bag

to him; he did not see it. I put it close to his eyes; still he did not see it. I shook it as high as his nose; he saw nothing. I touched his hand; he seized it immediately and finished his cigarette. The moment he raised one of the matches, he had himself lighted, to his cigarette, I blew it out and gave him in place of it a burning match which I held in my hand. This he did not see. I put it near his eyes, so close that I burned his eyelashes; but he saw it no better—he had not even an inclination to wink. He lighted another match himself, but I again blew it out again and substituted mine, with the same indifference on his part. I touched the cigarette which he held in his mouth with it, burning the tobacco in it; he noticed nothing, and made no attempt at inspiration. This experiment, so remarkable for its simplicity and results, bears out the former one. Both prove to us that the patient sees certain objects and does not see certain others; that the sense of sight operates only for objects brought into personal relation with himself by touch, failing for other external objects. He sees his own match and does not see mine. I have, at different times, in subsequent attacks, repeated the same experiment and obtained the same results; the patient was indifferent in them all; his eye was dull and fixed; it did not wink nor did the pupil contract.

"For more than two hours M. Maury and I followed this patient, watching his movements, his behaviour, and listening to his opinions. We traversed the greater part of the hospital with him, and finally found ourselves in the kitchen. I turned him toward the matron's private room, where he had never been; he guided himself by his hands, made a tour of the room, touching everything as he went. He felt a cup-

board and opened it, felt several vials, took them out, examined them, saw some wine and drank it.

"When he reached a small bureau his sight was arrested by some brilliant objects that were standing on a what-not. He took them, examined them, and put them one after the other in his pocket. I threw some pens on this bureau while he was feeling it with his hands, hoping they would give him the idea of writing as soon as his fingers touched them.

"He had hardly touched them before he took a chair and began a letter addressed to one of his friends. He said to him the hour of their appointment must be changed, because he was to sing that evening in the *café* in the Champs-Élysées, and he would not reach home before eleven o'clock. We allowed him to finish this letter without interfering. He put it in an envelope, addressed it to Mlle. X——, and added '*To be sent by a special messenger.*' This special direction evidently meant that this letter was important to him, and that he intended to forward it without delay. He put it in his pocket and rose, and at the same time I secured this letter, to which he attached some importance, without any difficulty. He did not even notice the theft that I had committed, although my hand, while reaching to his pocket, unintentionally pressed upon his chest and arm. The terms of the letter made me think that our patient was following a train of ideas that we would very much like to see him take, but which it was impossible for us to suggest to him. He had in his former attack sung several songs from his *répertoire*, at a time when memories of his old profession as singer had spontaneously crossed his mind, and so we waited in the hope that some happy chance would induce him to sing again; for we had no means of suggesting this line of thought

to him. He had only taken a few steps in the court when he commenced to hum the airs which seemed familiar to him, after which he turned toward the room he had occupied ever since his arrival in the hospital. When he reached his bed he took from his shelf his comb and glass, combed his hair, brushed his beard, adjusted his collar, opened his vest, paying the greatest attention to all the details of his toilet.

"M. Maury reversed his glass. He was no less assiduous in his attention to his toilet, looking at himself, as before, in a glass that no longer reflected any image. We were no longer in doubt then that he was preparing for a theatrical performance. He took from his bed the clothes which he had just laid aside, and immediately threw them down again—it was his hospital dress. He then quickly felt all over the chair with his hands, and over the window sill, at the same time manifesting some impatience.

"The expression of the patient's dissatisfaction was too marked to leave room for any doubt that what he sought was clothing, connected with the idea that he was carrying out. His overcoat, which belonged on one of the pieces of furniture near at hand, could not be found when he wanted it. One of us took off his own and put it in his hands. He put it on at once. His eye was attracted by the brightness of a red ribbon; he touched it, looked at it, and picked it up. He found on his bed several numbers of a serial story, which he turned over rapidly without finding what he was looking for. What could he be seeking so earnestly? Obviously for sheet music. I took one of these numbers, rolled it, and putting it in his hand, all rolled as it was, I satisfied his desire by giving him the illusion of a roll of music. He immediately took his cane and crossed

the room with a free and easy step. On the way he was stopped to take off the overcoat he had on. He submitted without any resistance. The hospital nurse put his own overcoat in his hands; he put it on, felt for the buttonhole, saw the ribbon of the military medal, and seemed to be satisfied. He nimbly descended the staircase to which he was accustomed in everyday use, crossed the court of the hospital with the air of a busy man, and turned toward the exit. When he reached it I barred the passage and turned him with his back to the door. He allowed me to do so without any resistance, and continued his walk in the new direction which I had given him, groping his way into the lodge of the *concierge*, which opened on the passage where we were.

"Just then the sun brightly illumined a glass partition which inclosed the lodge on the court side. He seemed to be far from insensible to the brilliancy of this light, which probably caused an illusion of sight by awaking a sensation suited to the idea which prompted his action. This light gave him the illusion of a stage, for he immediately placed himself opposite it, readjusted his toilet, opened the roll of paper that he had in his hand, softly hummed an air, glancing over the pages which he slowly turned, and marking time perfectly with his hand. Then he sang skilfully and with expression a patriotic song, to which we all listened with pleasure. This first piece ended, he sang a second, then a third. We then saw him take his handkerchief to wipe his face. I gave him half a glass of water strongly flavoured with vinegar, but he did not see it. I placed the glass under his nose without his perceiving the odour. I put it in his hand and he drank without betraying any sensation.

"What rôle, we may ask, did the sense of hearing—absolutely closed to impressions from without—play in the perfect performance of the three songs that we had just heard him sing? Did he hear himself sing? Had he any actual perception of his own voice while unable to hear mine when I talked to him, or the loud and varied noises that we sounded in his ears? The case was similar to the former experiment on the sense of sight. We had proved that he saw the match that he held in his own hand while remaining in absolute ignorance of the match which I held out to him.

"The scene at which we had just been present did not give us data for solving the question; for the making use of his songs might be a simple automatic movement, just as the energetic fight between himself and the Prussian soldiers was when he believed he was armed with a gun. Both these cases might only be memory in action. His gestures, his attitude, the inflections of his voice, the shades of sentiment and of vivacity which he expressed in his song, being things learned long ago and repeated a great many times, might be only episodes of his ordinary life, simple reminiscences, unconscious vocal expressions of an automatic kind like a great many other facts that had occurred before our eyes. We had an intense desire to solve this new problem by a decisive experiment, and it was still by the medium of impressions of touch that we cast about to approach the sense of hearing.

"We knew that F——'s contact with a pen excited an idea of writing, and that tobacco put in his hand roused an idea of smoking. We might then expect that to cause him to chance upon a bow would suggest the idea of music, for he was accustomed to use a violin for practising his songs. We prepared for this purpose a

violin thoroughly out of tune, wishing to put it in his hands, and thus find in this experiment a conclusive demonstration of the reality or the nonreality of his hearing. Was F—— able to tune and use his violin as he was in the habit of doing or not? But the attack ended before we were able to make this simple experiment.

"This scene, which I have endeavoured to recount faithfully, is interesting by reason of the series of events that succeeded one another from the time that we saw him write the letter to his friend. The letter marked the moment when the idea of a concert presented itself to his mind. From that time, until he realized it, everything harmonized and contributed to the same end. He followed the same idea for at least three quarters of an hour, and nothing could distract him from it for an instant.

"Here lies one of the most interesting points of this observation, for it clearly shows the essential difference which exists between the psychological state of sleep and dreams and the special conditions which F——'s malady produced in his brain and nerves."

The history of the sergeant of Bazeilles presents striking analogies with the cases of the hysterical somnambulists cited above, and, at the same time, we may point out the notable differences which prevent us from connecting this observation with the preceding ones.

The analogy is seen in the existence of several separate psychological lives. F——, after being wounded in the head, shows in his paroxysms a special psychical activity which differs from his normal life and constitutes, if we may use that phrase, a "second condition." The line of separation in the two existences lies here, as in

the case of Félida, in the memory. The patient returns to his normal life with no memory of what he has said or done during his attack, no memory of the spectators who surrounded him, or of the tests to which he has been subjected. His state during the attack differs also, it appears, from the normal by a change in his character, and notably by the persistent impulse to steal, which makes the patient seize and hide all the objects that he comes across. Here, then, are two elements—memory and character—which clearly distinguish the "second condition" from the first condition; and in all the details the analogies between F—— and the other patients that we have described are, in these respects, remarkable.

The differences consist in the form of mental activity that F—— shows during his attack. While Félida, Louis V——, and the others show during their second condition an intelligence alive to all external stimulations, F——'s mind, on the contrary, is closed to all stimulations that have no relation with the dominant idea of the moment. We have just seen him spend two hours going through an entire hospital, crossing the halls and the patients' rooms, and walking in the garden without suspecting that numerous persons were following and watching him. He did not see these people, because they had no part in the circle of his ideas. He did not even see any of the objects which had no relation with the inner romance which he carried in his head as he walked. When he felt the need of smoking, and M. Mesnet after extinguishing his match gave him one that was burning, he did not see it, and even allowed his eyebrows to be burned by the flame. But he saw the pen that he was using to write with and the letter paper on which he wrote, the hall

that he crossed, and the door that he opened. All these objects were in relation to his dominant ideas. This point M. Mesnet understood and described well; and he also noted with care the prominent part performed by touch in the mental movements of his patient.

Thus F——'s mental activity during his attacks shows a certain systematic development. M. Mesnet admits, moreover, and repeatedly affirms, that it is an unconscious activity, purely reflex and automatic. In that case he would not have a trace of conscious thought, judgment, or imagination. This explanation, emanating from an authority who had himself observed the facts, is presented with such conviction that several psychologists have had no difficulty in accepting it. It has thus been for some time currently believed that in the case of some patients an unconscious and blind mental activity may, at stated times, supersede consciousness, assuming control of the organism, and producing a series of complicated actions. This hypothesis—for it is one —has been adopted by the well-known English naturalist, Huxley, and has been used by him in constructing his theory that consciousness is an epiphenomenon. Of what use is consciousness, it is asked, if it can be so easily dispensed with? if the brain, in its absence, can perform intelligent actions? Consciousness is a luxury of the mind, a useless thing, a superadded phenomenon, which attends the physiological process, reveals it, but does not constitute it. Consciousness has been compared to the shadow that follows the path of the traveller, to the light emerging from the furnace of an engine, to the bell that by striking tells us the hour marked on the dial of a clock. Do away with the shadow, the light, the bell, all these external signs, the

internal mechanism which they disclose will operate none the less. And so if consciousness, let us suppose, were suppressed, the brain would continue to operate, ideas to follow one another, and judgments to fall together in arguments as they were accustomed to do before.

We begin to see now, however, that these hypotheses are very rash, and that in every case the facts that served as the principal point of departure are capable of a totally different interpretation. It is by no means proved that the mental activity of the sergeant of Bazeilles during his attacks is that of a pure automaton; far from it, if the observation be reread with care. One meets with signs of consciousness at every turn; it is astonishing that it has not been taken into account. Let us look at it. At one time, dominated by the memory of his profession as a singer, he made his toilet to appear on the stage, and was looking for his overcoat. Groping about him he did not find the garment he sought and showed signs of displeasure. At another time, while he was occupied in writing a letter to his general, the sheet of paper on which he wrote was quickly removed, and he showed signs of surprise, displeasure. What are these, if not signs of consciousness? And do not these facts suffice to throw the most serious doubts on the hypothesis which considers man a machine?.

Accordingly, as we advance in our subject we shall have occasion to show again and again that consciousness does not renounce her rights as easily as has been sometimes admitted, and that she can exist even when psychological activity is very low.

II.

Since the publication of M. Mesnet's account a number of observations of the same kind have appeared to confirm its accuracy.

The most important of these new observations are unquestionably those collected and published recently by M. Charcot and his pupils. M. Charcot was kind enough to show me his patients, and I found in them great psychological resemblance to M. Mesnet's case. These patients all show the exaggerated systematization of intellectual activity, which makes them perceive certain objects with great acuteness, while others pass entirely unnoticed. I cite one of these observations, borrowed from a very interesting publication of M. Guinon's: *

"The subject is a journalist, twenty-nine years old, named B——. This man was not one of the class usually brought into the hospital. He was well brought up, having received a good education and an academic degree. His parents were well off, and left him some property that he squandered between his eighteenth and twentieth years.

"At the age of twenty he went into military service for a year as a volunteer in the hussars. There he had a serious attack of typhoid fever, for which he was treated in the military hospital. During his convalescence he was a little deaf, his limbs were swollen, and he showed evident disturbances of memory. After two months of convalescence he was at last cured, but two months later certain nervous symptoms appeared.

"The first appearance of these troubles could be

* Progrès Médical, 1891, No. 20 *et seq.*

traced to no known cause. One evening, at home after dinner, he felt a lump arise in his throat and suffocate him; then he fainted. For two or three hours he struggled, rolling on the floor, and his convulsions were broken by periods of slumber. After that he had no more attacks for eight years.

"When he was twenty-four years old, completely ruined, having learned no trade, and obliged to work for his living, he took up journalism. He became a reporter of court news, the theatres, etc.

"In May, 1890, he was sent to Marseilles by a Parisian paper to report the journey of the President of the republic to Corsica. For some time he had had a kind of trembling in his right hand which greatly inconvenienced him in writing, and for this reason he was accompanied by a young secretary, to whom he dictated his despatches and articles.

"While he was at Marseilles he was very much overworked, and this brought on a nervous attack of which he had premonitory symptoms. At this time the trembling of his hand was at its maximum. It was while he was in this city that he found out that he had right hemianæsthesia.

"After continuing his work for a month he presented himself at the Salpétrière for advice, on Tuesday, October 21, 1890, again feeling the symptoms of a nervous attack.

"These symptoms are always the same. They consist of headaches, loss of appetite, nausea sometimes followed by vomiting, chills, and sensations of heat and cold. To these should be added a kind of disorder of memory; he no longer remembers anything—forgets what he has done the evening before, and what he should do the next day. This kind of general discom-

fort has preceded nearly all the attacks in the series which have occurred since that time.

"When he presented himself to us he was a man of average strength, not very robust, a little pale, and with a depressed and sad air. All his physical functions were normal. There was no disease of the heart or lungs.

"The right side of the body is the seat of anæsthesia, which is absolute for touch, pain, and temperature sensations. The loss of muscular sense of this side is not absolute; he feels it when some one moves his finger, but without always being able to tell which finger. All deeper muscular and articular sensation is absent.

"A painful spot exists in the right iliac passage. Pressure on this point, provided it be strong, occasions aural phenomena in the head (throbbing in the temples, ringing of the ears). Further, if it is continued, it stops the attack. Another such spot also exists about the internal condyle of the femur of the right side.

"Taste is wanting on the right side of the tongue; smell is completely lost on the right side. Hearing is somewhat impaired on the same side. As to sight, a contraction of the right side of the field of vision to 30° is noted. On the left the field of vision is normal. Further, there is achromatopsia and monocular polyopsia.

"The patient told us that he was *hypnotizable*, and that in *the hospital clinics where he had served as subject for various experiments he had been hypnotized by means of pressure on the eyeballs.* We shall see, later on, into what a state the patient had really been placed by this agency.

"Two days after his admission the patient asked us

to hypnotize him, as it had been done at Montpellier and elsewhere, because he felt a certain improvement after these induced sleeps. We willingly acceded to his wish, and after he was seated in a chair repeated the manœuvre that he said had been employed for this purpose—closing the eyes with a slight pressure on the eyeballs.

"After some seconds the patient went through the movements of swallowing and vomiting. We thought he was about to vomit, but he did not. Soon his limbs stiffened out and the body bent itself a little backward. His legs were half together and the feet extended stiffly. The arms were held against the body, the forearms held out, with the palm of the hand thrown back and out, and the fingers bent. If the arm was raised it remained in the position which was given it. Then the patient had a shivering attack and his limbs again became supple, and he sat up, calm, his head hanging a little forward on his chest, his eyes closed in the attitude of one who sleeps.

"Some moments later, with his eyes still closed, he began to recite in a low voice some lines of Horace. Just then we called in his right ear, 'Soldiers!' He stopped his quotation from Horace, and in a few seconds, after muttering some unintelligible words, he cried with a loud voice, and with the intonation of an order: 'Forward march! Right about! right face!' Then he opened his eyes, and with a set look, as if gazing into the distance, his eyelids wide open, body bent forward and neck outstretched, he seemed to follow with eager attention everything that was happening in a scene afar off.

"Some light rhythmical blows were then struck on a gong. The patient assumed a more quiet attitude,

which seemed to express contemplation, and said, 'Marguerite enters the chapel—Mephistopheles!'

"Just then some one pricked the right side of his face, which was anæsthesic the night before; he immediately showed that the sensation was felt, for he made a grimace and put his hand on the place. The left side, on the contrary, was now anæsthesic, although it had not been so the night before. At the same time he cried 'Oh! the flies!'

"We opened his eyes and gave him a red glass. After a few minutes he cried out anxiously, 'Oh! fire!' and then, talking to himself and changing his tone, 'There are at least five hundred lines to be copied!'

"Three blows were struck on the table. The patient cries with authority, 'To the stage, mademoiselles!' Then, changing his tone, 'Well, well, little Élise—where did she get her figure? I didn't recognise her; it must be her maid that arranged her to look like that.' Then, jokingly: 'X—— [an artist's name], who made Delaunay with the little foot!'

"The patient was now given a blue glass. He exclaimed in admiration: 'Oh, how beautiful! This last picture is superb! The high lights—it is the Exposition of the Black and White!'

"Given a red glass, he said, still with admiration, 'Beautiful colour!' Then changing his tone, he exclaimed with anxiety, 'Fire!'

"Then given a blue glass, the patient said, ironically and with emphasis: 'Well, I must be in one of Theophile Gautier's books! I see my princess through a window. We will sing together the song of our twenty years!'

"Three blows were struck on the table. The patient, changing his tone, and as if talking to himself

and listening: 'There is the overture—tremolo in the orchestra!' Then questioningly: 'What is it—vaudeville?' Then, as if he were criticising the play: 'There is the plot, as Sarcey says—the dialogue is slow.'

"A magnet was struck, and gave a sound like a bell. The patient, imitating the tones of the guards, called: 'Chauteau Chillon! Vevey! All aboard!' Then changing his tone, as if he were speaking to one of the guards, who hurried him, he said: 'They have gone—they are still embarking—we are not going to have a ducking at least!'

"The sound of a drum was imitated by striking on the table with our fingers. The patient, speaking sadly to himself, said: 'It is a march to execution; they are going to disgrace him, unfortunate wretch! He is going to be punished, while the spy at Nancy will get off with five years in prison. This man, who represents the head of the Government! Such is justice!'

"As we see, the delirious conceptions manifest the characteristics of the personality of the patient to the highest degree. He is a journalist, a 'literary man,' without money, living as best he can by his pen. He talks of nothing but reporting, theatres, and the misery of writing by the job. So much for the professional side. As for that which concerns his character, he is not inconsistent here, either. He is sceptical, disappointed, and all his delirious ideas conspicuously bear this stamp. Eventually new scenes will be added. After a period of sojourn at the Salpétrière, after having observed things and people about him, he often talked in his delirium of the hospital, patients, and physicians, always with this sceptical and disappointed tone.

"Some days after his admission into the hospital the patient, who noticed with interest all that happened

around him in the house, had repeatedly declared his intention to write something—a novel, a little story about the Salpétrière. Taking advantage of a moment when he was in his delirious state, we drew his attention to this subject by repeatedly shouting in his ears, 'The Salpétrière!' placing pen, ink, and paper before him. In a few moments he began to write, and so filled twelve sheets of paper, forming a sort of prologue to his novel, without stopping, except to light some cigarettes which we offered him. He described the consultation for non-residents at the hospital on Tuesday morning; the manners and appearance of the various patients and attendants. He did not dwell on the description of the members of the medical staff, but related his emotions, and the way of his admission to the bureau, etc. From time to time he talked to an imaginary friend, as if he had met with a fellow-reporter in the office of an editor of some journal, complaining of the unreasonableness of the reader, who never has enough copy, asking advice, erasing wrong words, adding notes and references, regularly made out. These twelve pages are written in about an hour.

"He was then roused by our fanning his face and pressing on an hysterogenic spot that he had in his left side. He came to himself after some convulsive movements, and his manuscript was put before him. He recognised his handwriting, and seemed much astonished to find that he had written so much in an hour. He thinks some one made him do it while he "slept," for he had not composed anything on that subject in his waking state, and, besides, in his waking state he would require two full hours to write twelve pages without corrections.

"Three days later the experiment was tried again.

The patient took the pen and deliberately, without hesitation, numbered his first sheet 13, and at the top of the page wrote the last word of his preceding manuscript.* That day he wrote seven pages consecutively, of which the last (No. 19) was only half finished.

"The next day there was a new experiment. He began by numbering his page 19a, with the last word of the preceding page, and wrote half a page. The next day he began again, and continuing the unfinished page, 19a, he numbered the next 19b, then stopped at page 20.

"We then left him twenty days without speaking to him again of his novel, and at the end of that time we again drew his attention to this subject. He took the pen, numbered his first sheet 21 without hesitation, writing at the top, as usual, the last two words of the last sheet written twenty days before."

The patient observed by Charcot and Guinon differs chiefly from M. Mesnet's by reason of greater sensorial activity. Touch has less importance, for sight and hearing are more alert. Moreover, the patient has the use of speech, and utters reflections that are often rational, sometimes spicy, clearly showing that he is not an automaton deprived of consciousness. Charcot's observations then remove all doubts which might have still existed on this important point. We think it useless to insist upon it, as the demonstration appears to us to be so conclusive. Consciousness is as undoubtedly present in the case of these patients during their attacks as in the cases of the somnambulists studied in the preceding chapter.

* It is the custom of many writers for the press to repeat on the top of each page the last word of the preceding page. The patient always did this.

The journalist B—— also presents other psychological variations. He is less fixed in his delirium than the sergeant of Bazeilles; the latter not only does not talk, but does not understand what is said to him, and consequently he is inaccessible to verbal suggestions. The journalist has a form of delirium with which one can enter into direct relation, since he hears and understands what is said to him; but his intellectual condition remains very different from that of the hypnotic somnambulists, nevertheless, for the hallucinations and delirious conceptions that are communicated to him develop independently of the will of the experimenter.

Summing up, the somnambulism of the preceding subjects finds its fundamental characteristic psychologically in delirium, while these subjects have properly two personalities—that of the normal state and that of the second condition; but this second condition is delirious.

We have seen that in the case of the somnambules of our first type the different manifestations of the second state are themselves connected and unified by memory. When the patient is in one of these states he remembers what has occurred in the other states; the second personality can then maintain its unity, and persists always the same, with the same character in the successive attacks of somnambulism. Does the same hold in the case of the somnambule of the second type? Does the second personality, which is delirious, retain memory of what has occurred in the former attacks? In many cases it is difficult to tell, for the patient, during his delirium, can not be subjected to a regular examination; he does not engage in conversation with the experimenter, and he is even incapable of giving the information for which he is asked. But occasion-

ally the very form which his delirium takes on and the actions which he performs may enlighten us. So there are two principal proofs of the continuity of memory, as we have already remarked above. The first is the conscious testimony of the subject, and the second is the repetition or the continuation of an action commenced in the preceding attack. The journalist B—— furnished this second proof, and from this standpoint the observation of his case is much more instructive than that of the sergeant of Bazeilles. We recall that B—— began during one of his somnambulistic attacks to write a novel about the Salpétrière. In his subsequent attacks he took up his work exactly at the point where he had left it, although he was not allowed to see the sheets he had already written, and following the usage of copyists, he repeated at the top of each page the last word of the preceding page. One day he remembered the last word that he had written three weeks before. So it is undoubtedly the same personality which manifests itself in the successive attacks.

Until now I have employed the word "attack" without attaching any very definite meaning to it. It would be interesting to know under precisely what conditions the mental activity of such patients as F—— shows itself. There has long been uncertainty on this subject, and the observation of M. Mesnet, although very detailed, teaches us nothing; it only appears that the sergeant of Bazeilles experienced a sensation of dizziness and some other subjective sensations before the attack came on. Charcot's studies were undertaken chiefly for the purpose of arranging these facts in their proper pathological categories. He then applied himself to determine precisely those physiological events on which the alterations of consciousness de-

pend. We shall speak very briefly of the conclusions which he has reached, but the exclusively psychological nature of our study obliges us to pass rapidly over medical details.

Charcot admits that the somnambulistic or pseudo-somnambulistic phenomena of the class of those which we have just studied belong to the crisis of major hysteria. They represent the intellectual phase of that crisis, which shows itself only after a convulsion of the limbs. It is the period of passional attitudes and of delirum, periods which in an ordinary attack are generally little developed, but which here present so considerable an exaggeration that they themselves constitute nearly the whole of the crisis. One can always discover on close inspection, in the cases which run their course, the existence of some convulsion of the limbs, and this convulsive element, although so slight, represents the phases of tonic and clonic movement which are so important in the other crises of hysteria.

CHAPTER III.

INDUCED SOMNAMBULISM.

I.

We may now leave the account of spontaneous alterations of consciousness and enter the domain of phenomena artificially induced. We shall thus endeavour to study the divisions of personality which may be produced in the laboratory.

The importance of these experiments, and, above all, their psychological value, have been very differently estimated within the last few years. At first, when studies on hypnotism and somnambulism were brought into favour by M. Charcot, there was a movement of great enthusiasm. Since then—we may as well admit it—enthusiasm has diminished a little. One may see for himself that these studies present a great many loopholes to error, which very often perverts the results despite the precautions of the most careful experimenter; and no one can boast that he has never failed. One of the chief and constant causes of mistake, we know, is found in suggestion—that is to say, in the influence that the operator exerts by his words, gestures, attitudes, even by his silence, on the subtle and alert intelligence of the person whom he has put in the somnambulistic state.

But these causes of error should not lead us to

abandon such a fruitful method. All processes of observation are shown after long use to be defective from some standpoint. It is so in the case of the graphic method, which, though so wonderful in many cases, still gives rise to serious misapprehensions of the forms of movements. Anatomy itself, which of all the biological sciences seems to be most firmly established, may be mistaken and take appearance for reality. The observer must be wide-awake and constantly on his guard in using his method and his apparatus. The chief precaution to be taken here consists, as I have already said, in selecting out those observations which are repeated, which receive verification at other hands as well, and which are confirmed by different methods.

Before considering this subject it may be of service to recall briefly what hypnotic somnambulism is, and what the means of inducing it. For all details into which I can not enter the reader is referred to one of my earlier works,* where induced somnambulism was studied for itself as well as in its psycho-pathological aspects. I shall not consider this state here except as it is connected with the theory of the alterations of consciousness; and I shall not borrow from the former descriptions more than is necessary.†

Effectual means of inducing somnambulism are very numerous, so numerous that it would take too

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* Binet and Féré, Animal Magnetism, in International Scientific Series.

† The somnambulism which we are now to study differs from natural somnambulism, and from that of the hysterical crisis, only in that it is induced. This difference is very slight; indeed both of these sorts of somnambulism may be artifically induced. There are other differences, but they are still obscure. To avoid confusion, the experimental somnambulism may be called hypnotic.

long to give a complete detailed list. One of the oldest known processes is that of Braid. It consists simply in the fixing of the gaze. The subject on whom the experiment is to be made is seated, every one remains quiet about him, and the experimenter asks him to look fixedly at a small object (brilliant or not) which he puts near his eyes, in a position to bring about a forced convergence and fatigue. After a while sight grows dim, the eyelids flutter and quiver, and the subject falls asleep. A person may also be hypnotized by a monotonous and prolonged noise, by a violent and sudden noise, by a flash of electric light, by light or heavy pressure on some part of the body, such as the vertex (in the case of hysterical patients), by binding the thumbs. Passes are often successful means to the end. The attempt has been made to classify these different processes of hypnotizing, and even to give them a physiological explanation; but their diversity, the slight stimulus necessary to produce the effect (sometimes a whistle or a gesture is sufficient), and finally, the characteristic fact that in the case of a person who has often been put to sleep in this way all of these methods are successful—these considerations lead to the supposition that psychological causes play the larger part.

Yet it is very clear that this explanation does not go far, and those who assert that suggestion is the only cause of hypnotism tell us very little about the mechanism of the operation. The majority of subjects sleep because they know that that is what is wanted; that is evident, indisputable. But how does this idea produce somnambulism? It is very curious that a person who has never slept in this way, and to whom this idea of sleep is given, enters into this particular

state, which is by no means the normal sleep, and of which he has had as yet no experience. To explain that by suggestion is to be satisfied with a word. Let us acknowledge that we know very little about all these phenomena; for inducing hypnotic somnambulism we have some useful receipts, and that is all.

But suppose that somnambulism has been induced, by suggestion or otherwise, in what does the new state consist? How does it differ from the waking state? What transformation has the subject been made to undergo by commanding him to sleep? It will, perhaps, be as difficult to reply to this question as to the former one. What we know best are the psychological modifications shown by the hypnotized subject—that is to say, the alterations which are produced in his thought and feelings. It is probable, even certain, that these alterations have as a basis material modifications which are produced in the nervous centres of the somnambulist and in other parts of his organism. But the nature of these purely physiological phenomena is quite unknown, and all that has been written on this subject seems to me to be fanciful. The psychology of hypnosis is as yet what we know best. It is the only light which can at present guide us in our researches. Without doubt it would be desirable to go further, to add to the study of psychic functions that of physiological functions; to explain alterations of consciousness by experiments directed to the nervous centres; for we can not conceal the fact that these phenomena of consciousness that we describe are often vague, indefinite, and without clearly defined outlines; and an exact mind could not be satisfied with their description and with the declaration that their study is not scientific. Yet we are obliged to be content with very vague

notions, since, all things considered, they are worth more than false notions, and we do not hesitate to prefer them to physiological hypotheses, which while seeming more exact are really much more hypothetical.*

If, then, one comes to define somnambulism from a psychological standpoint he sees at once that it constitutes a new mode of mental existence. The old mesmerists were quite right when they described it as a second personality.

Two fundamental elements constitute personality—memory and character. In the latter respect, as to character, induced somnambulism is not perhaps always clearly distinguishable from the waking state.

It frequently happens that the somnambulist does not relinquish the character that he had before he was put to sleep. The reasons are manifold. In the first place, experimenters who introduce a person into the state usually have some suggestion to give them. We are liable not to pause to study what is spontaneous in the state produced. Modifications of character, if they exist, may easily pass unnoticed. Then, it should be observed, that a modification of character, especially a modification of the emotional tone, is one of those important phenomena which most frequently have an internal ground in unconscious sensations, and appear externally in important modification of the physical organism. We have seen that such phenomena occur in spontaneous double personality, and particularly in cases where the second state lasts for years. Such a

* Readers of my earlier works will see that I have altered my view on this important point. [See Animal Magnetism, by Binet and Féré.—Ed.]

radical modification is not generally produced in states of induced somnambulism, which last only a short time and are induced by stimuli that are sometimes extremely slight.

This does not hold for the second element of personality—memory. It has long been said that memory supplies the chief sign by which the new state may be distinguished from the normal state. The somnambulist shows, in fact, a curious modification in the range of his memory; the same regular phenomena of amnesia may be produced in him as occur in the spontaneous variations of personality.

Two propositions sum up the principal modifications of memory which accompany induced hypnotic somnambulism; first, the subject recalls during his waking state none of the events which happened during somnambulism; and second, on the other hand, when put in the somnambulistic state he may remember not only the previous somnambulistic states, but also events belonging to his waking state.

The accuracy of the first proposition can be easily proved by all those who have made experiments or assisted at them. Usually when a person is put in a somnambulistic state he is kept in this state for an hour or more, and the time is employed in making a multitude of experiments upon him. On awaking the subject remembers nothing; he is obliged to look at the clock to know how long he has been in this state. If he has been introduced to people during his second state, he does not know on awaking that he has even seen them before; and even if he is shown a letter that he has been made to write in his somnambulistic state, he easily recognises his handwriting, but he has no memory of having written it, and can not tell a word of

the contents of the letter. We must hasten to add, however, that nothing is absolutely fixed among such delicate phenomena; there are memories which can sometimes be recovered—especially in the case of those patients whose somnambulism is light—by helping them a little, putting them on the right track. For example, by repeating to them the first words of a poem that some one has just recited to them, the awakening of somnambulistic memories is aided. If the subject be directed to remember, if he be given a positive suggestion to remember all when he awakes, or if, as M. Delbœuf has ingeniously imagined, he be suddenly roused while performing an action in the somnambulistic state which he has been ordered to do, being thus taken in the act just as he awakes, he may then remember the action he was just about to perform or the order just received. In this way the physical continuity of the waking and somnambulistic states is established.

But these are artifices which do not impair the accuracy of the rule formulated. Oblivion remains the truth in the immense majority of cases, and nearly all observers agree in recognising it. The book of somnambulistic life is closed on awaking and the normal person is unable to read it.

According to our second proposition, the subject recovers in a new somnambulistic state the memories of the previous ones, and he remembers equally well his waking state. It follows, therefore, that memory attains its maximum extent in somnambulism, since it then embraces two psychological existences at once as the normal memory never does. We have already discovered this superiority of somnambulistic memory in the observations on natural somnambulism. Félida, as

we have seen, when in the second state remembered at the same time this state and the first. It is a new analogy to be added to a great many others. It may even be remarked that the somnambulist, when he endeavours to recollect certain particulars, has better memory than the same person awake.

This collection of facts—whose accuracy, I repeat, has been verified by so many authors that it is useless to cite their names—amply suffices for the conclusion that induced somnambulism presents the same characteristics of memory as natural somnambulism. Braid was able to say with reason that artificial somnambulism is a division of consciousness.

One last remark may be made on the alterations of personality which are produced by artificial somnambulistic states. Although the idea that an individual gets of his own personality does not constitute this personality, but is only a single element in it, it is interesting to find out what some people in somnambulism imagine their condition to be. Unfortunately, the questioning of somnambulists does not always bring out satisfactory answers, for frequently the reply is clearly dictated by former suggestions. We find, for example, patients who declare that they are in a somnambulistic state, simply repeating what they have heard.

I may only suggest the curious fact that many people, the first time that they come into the somnambulistic life, experience a feeling of astonishment. They find everything changed. Some say they "feel queer, strange"; others, speaking more plainly, declare that they become an entirely different person. They speak of this person as they would of a stranger. I shall borrow an example from M. Pitres:

"A young woman, named Marguerite X——, whom

I was able to study at my leisure, very clearly illustrates this phenomenon. When she was in the sleep she never spoke of herself except in the third person: 'Marguerite is suffering to-day,' she said; 'she is not happy, she has been crossed, she had better be left alone.' 'But who then are you,' I asked her one day, 'that you speak in Marguerite's name?' 'I am her friend.' 'And may I ask your name?' 'I don't know; but I am very fond of Marguerite, and when she is made unhappy it grieves me too.'

"When in this condition she recognised every one with whom she was accustomed to have daily intercourse, but she did not speak to them with the same familiarity as in her normal condition. She no longer said 'thou' in speaking to her parents. Her husband was the husband of her friend Marguerite and not her own. She was very fond of wine, but usually denied herself so as not to trouble her mother. 'Will you have a glass of anisette?' I asked, after hypnotizing her. 'Oh, yes,' she replied; 'that will give me much pleasure. Marguerite does not drink, because she has been forbidden to; but I am free to do as I like. Give me a glass right away.'"

We shall repeatedly see, under different conditions, consciousness distinguishing in this way—by speech—the different personalities who dwell in the same individual from each other. This leads to some very interesting psychological questions, to which I shall revert after giving more facts.

II.

Experimentation, which is for many reasons inferior to the observation of spontaneous facts, nevertheless offers a great advantage, in that by infinitely multiply-

ing and varying the conditions of observation, it enables us to consider a fact under many aspects, and it sometimes gives rise to new phenomena which passive observation would have waited for in vain. It is a little that way here. By studying somnambulistic states experimenters have discovered some extremely instructive phenomena, of which no one would dream from reading observations of natural somnambulists, but which nevertheless must exist in patients of that class.

We have seen the separation of the two psychological existences which constitute, one the normal state and the other somnambulism. We have also seen that when the normal life develops, all memories of somnambulism are for the time being effaced. What then becomes of this existence—superadded during the temporary eclipse? It had its memories, its character, its emotions, and its preoccupations. Does all this somnambulistic activity disappear when the regular life resumes its course? Simple observation tells us nothing. Experiment searching more profoundly shows us that a remnant of the somnambulistic life can exist during the waking state, although the normal patient may not in the least suspect it.

One of the experiments which show it the best is the following, which we owe to Gurney, an English psychologist of much talent.* A name was pronounced, a number mentioned, a fact related, and a poem recited before a person who was in an artificial somnambulistic state, and she was not given any particular suggestion bearing on the words that were spoken. Then she was wakened, she remembered nothing, as is usually the case. It is not a simulated forgetfulness; it is sincere,

* Proc. Soc. Psych. Research, 1887, p. 294.

and so profound that notwithstanding the promise of a sovereign—the means employed by Gurney as a test of sincerity—the subject was unable to recollect a word of anything that had been said before her a few moments before. Then some one took her hand and placed a pencil between her fingers, or at least what amounted to the same thing—she was made to put her hand upon a planchette provided with a pencil for the purpose, and her hand and the instrument were hidden from her by means of a large screen placed between. In less than a minute her hand moved, she began to write, and what she wrote was precisely what had just been said before her when she was in the somnambulistic state, and what her normal ego of the waking state had not remembered.

The result of this experiment is so far very curious; the special conditions under which it was produced are still more so. The subject's hand wrote, and she herself did not know what her hand was writing; so, although her hand and arm are not insensible to pressure and pricks, the subject perceives nothing. Sometimes with a little exertion such a patient is able to feel a movement and guess its nature; but that is a modification of the phenomenon resulting from the fact that the subject gives his attention to it; at first he perceives nothing, and there are persons who, do what they will, can never perceive anything. On the other hand, the subject experiences a rather peculiar subjective sensation; it seems to him, he says, that it is the instrument, the planchette, that is animated by a spontaneous movement and draws his hand along. The movement is sometimes accompanied by painful tactile sensations which render the experience far from pleasant.

I may be permitted to add a few more details

to complete the picture of this phenomenon. By the method which Gurney used, the subject when just wakened did not try to put his hand on the planchette, or to take a pencil, as he would certainly have done had he been obeying an explicit suggestion, as, for example, if some one had said to him, "When you awake you will do thus and so." He gives no proof of spontaneity. Passively, without knowing what is wanted of him, he allows his hand to be put on the instrument, and while the writing is being traced his normal ego is completely disinterested; he neither pays attention nor shows readiness to assist at the little operation which is being performed—that is to say, he is now in a state of double personality. There are really two persons in him, one who is the normal person who chats with the assistants, and the other who writes; the first pays no attention to what the second is doing.

It is a condition of double personality, I say. The division of consciousness, in fact, closely resembles that which we have studied in the preceding chapters. All cases have this in common: that a collection of psychological phenomena, well co-ordinated and self-supporting, keeps apart and exists without normal consciousness. This secondary consciousness, in the case of natural somnambulists, does not become evident until the chief consciousness is effaced; then the second condition succeeds to the first. In that case there is alternation; in this case coexistence of the two consciousnesses side by side.

Gurney first attempted to show that the somnambulistic life does indeed survive in the midst of the reestablished normal life; and to that end he observes that if the subject be again put in the somnambulistic state after the experiment of writing, he will not only

remember the words which he has written, but, further, he can then say that he availed himself of the use of the planchette, and that he certainly wrote those words. Memory then connects the two states and demonstrates their psychological unity.

Gurney was also careful, in relating these curious experiments, to recognise the fact that the phenomenon of memory, shown by automatic writing, has by no means the character of mechanical and unintelligent repetition. Generally, it is true, automatic writing faithfully repeats the phrase said to the subject while he was in the somnambulistic state, and, even if he has been addressed by his name in telling him the phrase, the name is reproduced with the rest. But the use of certain devices of experiment show the part that intelligence clearly plays in these phenomena of handwriting.

It is possible to suggest several figures to a subject in the somnambulistic state, asking him to make the addition; then, if he be suddenly wakened afterward, without having been given the time to finish his calculation, he finishes it in the waking state when his hand is put on the planchette. He can also be made to do more complicated calculations, by asking him, for example, how many letters there are in such a sentence, and forcing him to make the calculation after he is waked, etc.

I have placed Gurney's observations in this chapter, which deals only with hysterical patients, because in studying them it is easy to see their accuracy; but it is important to add that Gurney did not study specially and solely this class of patients. People who submitted to his experiments are, he claims, people of good health. English authors, indeed, often make this statement; they are very discreet and reserved in speaking of their

patients, and often seem to be afraid to apply the name hysteria to persons who nevertheless clearly have nervous attacks. However, it is of no consequence. I may say in this connection that hysterical patients have been my subjects from choice, because they magnify the phenomena that must necessarily be found to some degree in the case of many persons who have never shown hysterical symptoms.

The importance of the results obtained by Gurney is increased by the fact that this learned author was the first in England to recognise the double personality which is realized in the case of a hypnotized person, and that he conducted his researches without any knowledge of those which were in progress in France about the same time.*

The characteristic feature of Gurney's experiments consists in the study of the memory of a person to whom no special suggestion has been addressed. By the delicate and ingenious method of automatic handwriting, the English psychologist demonstrated that somnambulistic states persist in the waking life.

Let us pause a moment to consider this psychological situation, for it is the first time it has confronted us. The subject of the experiment is brought back to the waking state; she has recovered her normal ego; she has resumed her usual course of thought; there still survives, without her being conscious of it, a remnant of the somnambulistic life which she has just passed through. It is a collection of psychological phenomena which remains apart from her normal consciousness, but which is nevertheless endowed with consciousness;

* Myers, The Work of Edmund Gurney, Proc. S. P. R., December, 1888, p. 369.

it forms a little consciousness by the side of the greater —a small luminous point by the side of a great focus of light. This example must serve as a transition between the studies with which we have been occupied hitherto and those which will fill the second part of this book. We have become acquainted with the regular succession of personalities, their alternation in natural somnambulism and in hypnotic somnambulism. We have just seen that this succession can give place to a coexistent state. The somnambulistic ego, the second condition, is not always completely effaced when the waking state returns, but survives, coexists with normal thought, and gives rise to complex phenomena of division of consciousness.

I shall now take up the study of coexistent personalities. Leaving the preceding researches on somnambulism, we are about to consider the subject in the waking state, and to describe processes calculated to show the divisions of consciousness which take place within him.

PART II.

COEXISTENT PERSONALITIES.

CHAPTER I.

AMNESIA OF HYSTERICAL PATIENTS.—REPETITION OF SUBCONSCIOUS ACTIONS.

I.

The question of multiple and coexistent personalities has brought out a great number of works within the last few years in France, England, and elsewhere, but the history of the question is very brief. We need not take account, of course, of the theories of the philosophers on the possibility of distinct consciousness and of double ego states before the time when it became possible to observe the facts of double personality directly. These theories date from the time of Leibnitz, but recent criticism has shown that they do not belong to the history of a question which made no progress until the day when it assumed experimental form.

Following the order adopted in the previous chapters, we may describe, in the first place, those spontaneous phenomena which are found outside laboratories, for they are the most profound, lasting, and least modified by the theories of schools, or of the leaders of schools, and which so reflect most faithfully the real facts. But there are reasons for abandoning this order of exposition. The chief one is that spontaneous phenomena of simultaneous doublement are specially asso-

ciated with spiritistic phenomena—with turning tables and raising spirits. Now, it is clear that even if these phenomena contain, as we believe they do, a great deal of truth, nevertheless it has been so obscured by the simplicity of some people and the frauds of others that judicious minds have always been sceptical. Although it might be possible to disentangle the snarl, to classify the facts as demonstrated or demonstrable, and to distinguish them from theories without foundation and from pure absurdities, yet I can not set out by beginning so difficult a task here. I am obliged, therefore, to postpone the study of spiritism till later on.

This exclusion being made, it may suffice for us to mention a single observation serving as an introduction to recent researches. It is a very clear observation on spontaneous mental quality made by Taine. This eminent author published it in the preface of his work on the Intelligence,* a book which is more than twenty years old, but which nevertheless contains indications of nearly all the results of contemporary psychology.

"In spiritistic manifestations themselves," says Taine, "we have shown the coexistence in the same individual of two wills, of two distinct actions, of one of which the subject is conscious, but of the other of which he has no consciousness; this he attributes to invisible beings.

"I have seen a person who, while chatting and singing, wrote complete sentences without looking at the paper, without being conscious of what she wrote. I thoroughly believe in her sincerity. She declares that from the beginning to the end of the page she has no idea of what she had written on the paper. When she

* De l'Intelligence, i, p. 16.

reads it she is astonished and sometimes alarmed. The handwriting is quite different from her usual style. The movement of the fingers and pencil is stiff and seems automatic. The writing always ends with a particular signature—that of a person already dead—and gives the impression of conveying intimate thoughts, of having a mental background which the writer would not wish to divulge. We certainly find here a dual ego, the simultaneous presence of two parallel and independent series, of two centres of action, or, if you will, two moral persons side by side in the same brain, each having its work and each a different work—one on the stage and the other behind the scenes."

I am now going on to study closely and in all its details this curious psychological phenomenon of a person in a dual state. To indicate the method of the exposition at once, I shall indicate the conditions under which the coexistence of two distinct egos may be most frequently observed. There are two cases. The first is hysterical insensibility. If a part of a person's body is insensible, he is not aware of what happens to it; and, on the other hand, the nervous centres in relation with this insensible region may continue to act, as is the case in hysteria. The result is that certain actions, more often simple, but sometimes very complicated, can be performed subconsciously by a hysterical patient; further, these actions may have a psychical nature, and show intellectual processes distinct from those of the subject, thus constituting a second ego, which coexists with the first.

A second condition may also occasion the division of consciousness. It is not an alteration of sensibility, but it is rather a particular attitude of the mind—the concentration of attention on a single thing. The result

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of this state of concentration is that the mind is absorbed to the exclusion of other things, and to such a degree insensible that the way is opened for automatic actions; and these actions, becoming more complicated, as in the preceding case, may assume a psychical nature and establish intelligences of a parasitic kind, existing side by side with the normal personality, which is not aware of them.

We may study these two conditions of the division of consciousness in turn. Many others undoubtedly exist also, but those which we have just mentioned are the only ones that have been closely observed up to the present time.*

II.

We find that there exists in a great many hysterical patients, examined during their waking state and apart from their convulsive attacks, a certain so-called stigma or defect, long since remarked, but whose real nature was not understood until within the last few years. This stigma—formerly called the *brand* of the possessed, or the *clutch mark* of the devil—is *insensibility*. The seat and extent of hysterical insensibility is very variable. Sometimes it invades the entire body; more frequently it is on only half of the body—for example, the left side—and affecting in different degrees general sensibility, touch, muscular sense, and the special senses of sight, hearing, smell, and taste. With others the insensibility—whose distribution, indeed, can not be ac-

* Numerous authors have studied these coexisting personalities in late years (see the observations which follow). We may cite especially two critical studies—Das Doppel Ich, by Max Dessoir, and a remarkable article by Héricourt on Activité inconsciente de l'Esprit, Revue Scientifique, August 31, 1889.

counted for by any known anatomical or physiological peculiarity—is confined to a small region of the trunk or to the limbs, as, for example, to a small insensible spot on the skin that can be pricked, pinched, burned, stimulated in the most intense way without producing the least sensation of pain, and even without arousing any perception.*

The genuineness of the anæsthesia is proved by various experiments, and also by certain physical signs which frequently accompany it. The most important of these signs are decrease in temperature of the non-sensitive parts, the absence of bleeding after pricking, the diminution of voluntary muscular force measured by the dynamometer, the form of muscular contractions, the absence of fatigue, the lengthening of reaction time, and, lastly, the absence of any cry of pain or movement of surprise when the insensible region is roughly and vigorously stimulated unknown to the patient. No one of these phenomena is an invariable sign, but the presence of any of them is an important indication to the observer.

The real nature of hysterical anæsthesia has long been misapprehended, and it has been compared to common anæsthesia from organic causes, as, for example, from the interruption of the afferent nerve tracts. This way of considering it should be completely abandoned, for we now know that hysterical anæsthesia is not a real local insensibility, but an insensibility due to unconsciousness, to mental disintegration; in short, it is psychical insensibility, arising simply because the personality of the patient is impaired, or even entirely

* For more details the reader may consult the excellent pamphlet by Pitres—Des Anesthésies hystériques, Bordeaux, 1887.

divided. Moreover, by practical experimentation on this old phenomenon of hysteria, we are able to study closely certain quite remarkable cases of the disintegration of personality.

Let us select for the experiments an hysterical woman, in whom this insensibility extends over an entire limb—for example, her right arm. Frequently, in the case of these patients, the complex forms of sensibility of the skin are dissociated. The skin may continue sensible, while the subjacent tissues, the muscular parts, and the joints lose their sensibility and become painless when pressed hard; or the reverse takes place—feeling deserts the surface of the skin and persists in the deeper parts. Or again, by a new complication, certain regions seem never to lose sensibility to touch, pressure, temperature, and electric stimulation all at the same time, but remain accessible to a single kind of these stimulations. These numerous modifications of sensibility in the case of hysterical patients have often led unprejudiced observers to believe in a simulation which really did not exist. To be as careful as possible, we should take care to choose a patient whose arm is perfectly and entirely insensible, showing a superficial and profound anæsthesia, and a loss of muscular sense. In this way we shall not have to guard against the suggestions that come to the subject by a remnant of sensibility. Further, it will be better if the sensibility of the patient chosen present a state relatively fixed, and be not subject to the fluctuations which are sometimes found, and for which it is so difficult to account. When experimenting upon hysterical patients it is impossible to take too many precautions.

It is not necessary to put the subject to sleep. He is taken in his normal state while he is awake, without

making him submit to any sort of preparation. The only preparation for the experiments consists in hiding his anæsthetic arm from sight, either by putting it behind his back or by using a screen. Things being so disposed, it is easy—at least in some cases—to bring out, without the patient's knowledge, intelligent movements in his insensible member.* We witness the awakening of an unconscious intelligence; we can even communicate with it and direct it, hold a coherent conversation with it, measure the extent of its memory and the acuteness of its perception.

The existence of unconscious phenomena in the case of hysterical patients need not astonish us; for each one of us may, if we watch ourselves with sufficient care, detect in ourselves a series of automatic actions, performed involuntarily and unconsciously. To walk, to sit down, to turn the page of a book—these are actions which we perform without thinking of them. But it is difficult to study unconscious activity in a normal man, for this activity shows itself chiefly in routine, in formed habits, kept going by repetition; in general, it does little new. Sometimes it seems to judge and reason, but

* The study of the phenomena was first made by Féré and myself (Arch. de Phys., October, 1887). I then pursued investigations alone, and my principal articles appeared in the Revue Philosophique (May, 1888; February and April, 1889; February and August, 1890), the Open Court (1889 f.) and Mind (January, 1890). It is important to note that before these different publications Pierre Janet, Myers, and Gurney, not to cite others, had already announced a theory of mental disaggregation, supported by many experiments. I have not followed strict historical order in my exposition, because I think that my own experiments lend themselves better than the others to a direct simple demonstration of double consciousness. I may take this occasion also to express my sincere thanks to M. Charcot for allowing me so kindly to work for many years on his staff in the Salpétrière.

these are old judgments and reasons which it repeats. At all events, it seldom acquires any considerable development, and almost never, one might say, amounts to the dignity of an independent personality. The conditions of study are much more favourable when we apply ourselves to hysterical subjects, not in all cases indeed, but in some which we shall learn to recognise later; so let us suppose that we have before us one of these choicest subjects, and see what happens.

The term *unconscious* has often been applied to movements and actions which may occur under the preceding conditions. This simply means that these movements are not known to the subject, and are consequently unconscious. The word unconscious has only a relative sense. We shall have to examine, after describing all the facts which we find, whether these phenomena, unconscious for the subject, are also unconscious in themselves and for themselves, or whether it is not more probable that they belong to a second consciousness. I may say at once that I prefer this second hypothesis. At all events, to avoid presupposing anything either one way or the other, I shall substitute for the term unconscious that of *subconscious*.

Let us commence by observing movements of repetition; these are the simplest and perhaps the most easy to produce. The insensible arm of the subject, hidden from him by a screen, is made to perform slowly or rapidly a regular movement, a seesaw motion toward the mouth; or perhaps the forearm is twisted upon the elbow, or a finger is stimulated by alternate movements of flexion and extension. If the member be released suddenly in the midst of this action, the movement is seen to continue for a time which varies with the subject. With some the communicated

movement is prolonged very little. The wrist which has been bent several times in succession scarcely rights itself when it is released. The movement is so slight and so short-lived that unless one is on the lookout it may not be noticed. On the other hand, with other patients the communicated movement may be repeated several times in succession; and I have even seen hysterical patients carry on such a repetition for over a hundred times—the number one hundred not being an exaggeration, for the movements were counted.

It is well known that the subject is unaware of these different movements. His arm is anæsthetic, and hidden from him by a large screen. Sometimes he perceives a slight noise made by the rustling of his clothing, and concludes that some one has touched his arm or moved it; but he does not receive any direct impression from the member itself. He is not conscious either of the movements which the experimenter gives to his hand or of those which his hand repeats afterward, so of course he does not make any voluntary effort to move his hand; his mind is practically unaware of the experiment.*

The same movements of repetition can be reproduced in the limb by faradic contractions or after reflex movements, and in this class of experiments the most delicate and interesting of all is the repetition of the movements of writing. As soon as a pencil is put in the insensible hand, by slipping it between the thumb and first finger these two fingers draw together to grasp the pencil, and the hand assumes the necessary position for writing. Just then, if the patient is asked what is being done to his hand, he almost always answers "I

* That this is not altogether correct we shall see presently.

do not know." Then the experiment begins. A movement of any kind whatever may be given to the pencil —for example, a circular movement—and the patient's hand does not follow that of the experimenter passively. On the contrary, one feels a definite sensation when holding it. It resists certain impulses slightly, especially those which occasion a change of direction; but if the tendency is to continue a line, to follow out a given direction, the hand almost aids in the movement, as if it divined it. In fact, the movement that one succeeds in communicating to the hand can not be called a passive movement, for the patient co-operates in it. To resort to a comparison, we may say that the experimenter directs the patient's hand much as a rider directs an intelligent horse.

Moreover, this particular sensation is not felt except when one is dealing with a patient who is capable of repeating by himself the writing movements through which he is led. With subjects to whom it is not a reproduction the hand remains indolent and inactive, like the hand of a lay figure.

After communicating passive movements we release the patient's hand, at the same time taking care to leave the point of the pencil touching a sheet of white paper. With some hysterical patients the hand falls to the side as soon as it is released; with others there is not this flaccidity, but the hand retains its position, holding the pencil correctly, as if it were about to write. But yet with some nothing is done; only a slight trembling in the wrist and fingers may appear, or the pencil may trace some faint indistinct lines on the paper, and that is all. But there are others with whom the subconscious movement is much more marked. The fingers continue to grasp the pencil, and the writing movement

that has been imparted is reproduced at once or some minutes later.

With what degree of accuracy is the movement reproduced? it may be asked. If the experiment is made on a normal subject whose hand is sensitive, he is able to guess the word his hand is being made to write; but when the word is long, the movement rapid, and the letters small, he is very often mistaken. The case is different with hysterical patients; and we may say, speaking generally, that although they have no conscious perception of the passive movement, they can often repeat it more accurately than can a normal subject. But patients differ greatly, and we must take that into account.

Some can only repeat common movements, such as rings or crosses. But when this movement has once been produced it continues for a long time, almost indefinitely. I once saw it kept up for a quarter of an hour. Other hands prove to be more intelligent, and have more memory. They are capable of producing under the same conditions written signs, figures, detached letters, words composed of several letters, and even entire sentences. Sometimes the repetition takes place as soon as the experimenter stops holding the insensible hand; then again a time of quiet elapses before the hand begins to move.

So far we have reported tests which give proof of memory, but the repetition seems mechanical, automatic. Yet something more may show itself—a more complex mental operation, though always unconscious, as when the hand is made to write a known word, the spelling being intentionally altered. Then it is interesting to watch the phenomenon of repetition. When the insensible hand comes to the incorrect letter, it stops, seems to hesitate, then sometimes it passes on, repro-

ducing the error; but sometimes, on the contrary, it corrects it and restores the word with its proper spelling.

The reproduction may be brought out not only by direct communication of such movements for writing, but by other more indirect processes which stimulate movements by unconscious sensations. Thus when the subject holds a pencil in his insensible hand it is often sufficient to trace figures or letters with a blunt point on the back of his hand in order to have the pencil soon after reproduce it all. It then shows itself to be something more than a mere repetition of movement; it is a translation—the cutaneous sensations are translated into their movement equivalents. In the same way, if the hysterical subject be placed at a distance opposite a scale of type, on which he learns by repeated trials at what distance he can no longer read, it is not unusual to find the hand reproducing the characters when the subject declares himself unable to decipher them. Naturally, if the distance from the subject to the table be increased too much, the hand stops and writes no more. So a translation is thus shown to be effected of certain unconscious visual sensations into their motor equivalents.

These writing movements are very simple psychological performances, with which the practice of actual writing has made us familiar. We copy a printed page without any conscious effort of translation, and we do not even notice that copying means substituting corresponding graphic images for the visual images. It is not less interesting to see that the unconscious movements of a hysterical patient may involve an analogous substitution, and that in this case the unconscious performance sets in play not only movements and motor

images, but also visual images, with mental associations between these different images.

Unconscious repetition may follow a voluntary movement of the subject as well as a passive movement. The case is perhaps more rare than the preceding. In order to observe it the hysterical patient must be asked to repeat the same movement several times without stopping—for example, to touch a place on his face with the first finger of his anæsthetic hand, then to touch a place on the table. After several voluntary repetitions of this action, and after the patient intends to stop, his hand continues the movement and raises itself quite alone almost to his face. This unconscious movement can often be suppressed by the will, but sometimes it is performed notwithstanding the adverse wish of the subject, who is greatly astonished by this unexpected insubordination of one of his limbs. The unconscious repetition of voluntary graphic movements is still more curious, giving the handwriting of some hysterical patients a peculiar individuality.

I have been able to obtain copies of letters written by subjects before the date when we examined them; and a little consideration enables us to detect the manifestation of these motor troubles. We see that the patient is often obliged to write the same letter several times in succession—a kind of *stammering of the hand.* Sometimes the patient notices it, strikes out the duplications, and begins the word again a little farther on. Sometimes, on the other hand, she does not notice it, and the errors might be taken for slight mistakes in spelling, if the *m*'s with four downward strokes and the *u*'s with three did not clearly show the contrary. It is possible to reproduce experimental-

ly on some subjects these alterations in handwriting, by asking them to write the same letter several times and then to stop. When they wish to stop, their hand continues to write in spite of them, and often they are

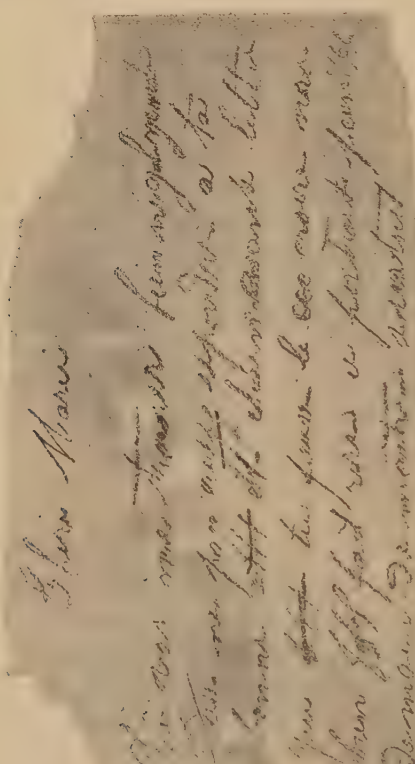

FIG. 1.—HYSTERICAL WRITING TRACED WITH THE INSENSIBLE RIGHT HAND, THE EYES OPEN: The words are as follows: "Chère Marie, tu va me trouv (trouver) bien negligente *ddde* ne pas r*eppp* répondre a ta bonne e*ttt* et charmante lettre qui *ttt* tu peux *eee* croire m'a bien *fff* fait rire; ce portrait pein*ttt* de main de maître surtout. . . ."

unable to put an end to the obsession except by throwing away the pen.

The writing in Fig. 1 shows the characteristics peculiar to the repetition of voluntary movements. The unconscious intelligence imitates the action of the con-

scious person, which is not the case in the experiments.

I may conclude by describing several characteristics common to the unconscious movements of repetition. They are:

1. Their diffusion; they do not remain absolutely localized in one limb. They have a tendency to become general, and often go over to the symmetrical member on the other side. When a hand has been made to write figures, soon the other hand moves; and if it holds a pencil, it will trace the same figures as the first. And, what is very curious, sometimes a hand which is not anæsthetic repeats the movement communicated to the other hand, and nevertheless the patient does not perceive it. The movement remains subconscious even when it is using the healthy hand.

We shall see later that the majority of the modifications of movement that may be produced in a hysterical subject in a part only of his body present the same tendency to generalization.

2. A second characteristic of unconscious movements of repetition is their fatality. When the hand is going to repeat a communicated movement, even be it as delicate as that of writing, it becomes rigid and hard to the touch, while in ordinary conditions it is as yielding as a member that has had a stroke of paralysis, or as plastic as wax. If one attempts to impede the movement while it is being performed, by holding the fingers in a fixed position, a strong resistance is felt. It is very difficult to hold the fingers motionless, and when the pencil is taken away the fingers continue to make the same graphic movements in space. Pressure brought to bear on the wrist re-

tards the movement a little. In the case of patients in whom contractions by stimulation of the muscles and nerves may be induced, it is difficult to produce them at the time when the hand, charged in a manner by a passive movement, is about to discharge it by reproducing what it has been made to write. When one succeeds in producing contraction sufficient to stop the movement, it sometimes happens that some moments after, if the contraction is stopped, the movement recommences.

In concluding the enumeration of this series of experiments it must be remarked that their interest lies in their simplicity. Nothing is more easy than to try to reproduce them in the case of an hysterical patient showing anæsthesia; and as the actions of unconscious repetition are the first symptoms of mental disintegration, the result is that mental disintegration—this most complex psychological phenomenon—may be verified by the most simple and elementary expedients. I believe we have in these cases a *clinical* demonstration of it.

It seems superfluous to demonstrate that these actions are intelligent. Some of the experiments prove clearly that certain movements of repetition are not pure reflexes. But to exactly what extent does the mind interpose? That is what we must endeavour to determine.

All the preceding experiments have one fact in common—that the experimenter constrains the subject, or a part of his subject, to repeat an action which he has indicated to him. He forces him without exercising physical violence; he works by moral influence, by suggestion. Let us suppose the existence of an unconscious subject, for convenience of our exposition, who

repeats the movements; we may then say that the experimenter, by touching the hand and arm, gives to this unconscious person the idea of repeating the action, or, in short, the suggestion.

This word suggestion, however, we have already criticised. It is vague. It leads to the confusion of several distinct things, and consequently we ought not to be content with it. Let us indicate rapidly the different possible interpretations of the phenomenon of subconscious repetition, considered as an effect of suggestion.

It is possible to give to a person awake or in a somnambulistic state an order or suggestion to imitate all movements that are performed before him, or to continue indefinitely the regular movement that is imparted to a part of his body. One may make his hands revolve around one another and say, "Your hands revolve and you are unable to stop them." And, as a matter of fact, if the subject is amenable to suggestion, a series of irresistible movements follow. It will be readily understood that this experiment is complicated; the movement is commanded by the experimenter, is complied with by the subject, who knows what he is about, who obeys this suggestion as he would a suggestion of a much more complicated action, requiring on his part extended intellectual operations. But those who have made a profound study of suggestion are well aware that the same action may be performed under totally different mental conditions. The continuation of a movement may occur, either from obedience, as we have just seen, or merely because an image has been conjured up in the mind of the patient, this image being the source of the movements. An anæsthetic hand is made to write a letter; the movement of this hand stimulates somewhere in the mind of the uncon-

scious subject the motor images; these images are not inhibited by anything; they spend themselves in action, and the movement is repeated. This involves no obedience; it is a much more simple and elementary psychological phenomenon.

I am unable to say what the explanation is for the phenomena of repetition, already described. Probably both explanations are correct, each holding for different subjects and for different conditions of experiment. Sometimes the repetitions of a movement is an act of intelligent obedience coming from an unconscious person who has understood what has been demanded of him and has performed it. Sometimes the repetition is a matter of images called up. It will be seen that in all these cases careful discrimination is necessary, and that the summary word suggestion does not take into account all the phenomena.

A significant fact is that many subjects are not capable in their waking state of receiving complicated suggestion through the medium of unconscious handwriting. The result obtained is only the repetition of the order that the subject has been made to write. The hand has been made to write the word "cough." The subject does not cough, but his hand writes the word "cough" several times in succession. If a question is put, by the means already mentioned, the hand does not reply, but repeats the question. "How do you do?" we ask. The hand writes "How do you do?" Nothing seems to be understood apparently by the unconscious person, who is still too rudimental to judge or to reason, and who can only do one thing—imitate.*

* Similar acts of repetition occur in hypnotic catalepsy. See Magnetisme, Animal, p. 133.

Another thing also appears to prove that in certain cases repetition is nothing more than an automatism of images; this repetition may continue almost indefinitely. Let us draw a circle for the insensible hand; it will draw this circle twenty times, a hundred times and more, without deviating in the slightest from the pattern, without tiring, without losing patience. It is a machine that is wound up and can not stop.

But every subject deserves to be examined for himself, and every unconscious person has very probably his own particular mental state. What is true of one is false of another; it is then useless to formulate general principles which would be inaccurate.

Finally, we should remember in coming to a conclusion on this point, that although an unconscious subject does not even seem to understand a complicated suggestion, it often produces a certain effect which we have to acknowledge; the suggestion which has not been understood persists in memory nevertheless. This memory, recurring in a new psychological state, may then be understood for the first time, and being understood, it becomes the point of departure for a tardy suggestion, which is carried out at a time when no one is any longer thinking of it. In our last example the hand is made to write any word whatever; this word is not understood, but remains in the memory of the unconscious subject; this develops later, as we shall see from examples. It means that the patient has been able to find the suggestion again, understand, and execute it. We should not lose sight of this possible source of error.

CHAPTER II.

INSENSIBILITY OF HYSTERICAL PATIENTS (CONTINUED).—SUBCONSCIOUS ACTS OF ADAPTATION.

I.

Lasègue gave, some time ago, in his description of what he called *partial catalepsy*,* an excellent example of subconscious movements of adaptation. It consists in the aptitude of hysterical patients to maintain for a very long time the position which has been given to an insensible limb, without feeling fatigue or even noticing the position of the limb, if the precaution has been taken to hide it from sight. Partial catalepsy may be observed under equivalent mental conditions apart from hysteria; but I shall describe the phenomenon here as it appears in the case of hysterical patients.

For example, let us raise the insensible arm of the subject, still in the waking state and using the screen. If we suddenly let go the arm, sometimes it falls down by his side as heavily as a member affected by flaccid paralysis, and with some subjects it is impossible to get any other result; with others, the arm remains raised. Let us suppose that we have one of these latter patients to consider. In raising the insensible arm it is possible, by means of a kind of sleight of

* Lasègue, Études médicales, ii, 35.

hand, to make it fall back again or to keep it raised. To make it fall it must be released suddenly; if one does not wish it to fall it must be held in position for a minute, or pressed a little. The anæsthetic member seems to understand the experimenter's wish wonderfully well; it understands it so well that when one is not forewarned one does not know what to make of it —that the limb remains raised when we wish it to remain raised and falls down when we wish it to fall. A slight difference of handling is enough to produce these two opposite effects. This example is one of the most striking that can be cited to prove the intelligence that may lie in the subconscious movements of an hysterical patient.

The most striking characteristic of the phenomenon, on which simulation, if it were attempted, could have no influence,* is the duration of the posture which is maintained. We do not say with Lasègue that this duration is unlimited—these are mere words. Lasègue, who was a man of brilliant initiative rather than of profound research, said humorously that "the experimenter would be tired of waiting before the patient was tired of immobility." But as a matter of fact the experiment may last a very long time. In the case of one of my subjects, the right arm extended horizontally and the forearm, slightly bent, took an hour and twenty minutes to drop; it was not until the end of this time actually that the elbow, which was slowly falling, came into contact with the body, and so ended the experiment. In the case of another woman, the experiment could not be finished; but we ascertained that after three quarters of an hour the hand of the right arm,

* As is possible in the case of a non-hysterical patient.

which was extended horizontally, had scarcely lowered itself five or six centimetres.

If these patients are asked to keep the same position at the same time with the sensible arm, both arms being extended horizontally, the difference which exists between the two sides is seen: the sensible arm becomes weary, and becomes so quite quickly, and the patient is obliged to lower it to rest, while the insensible arm still retains the position.

The conservation of the attitude is remarkable, not for its duration alone; it has this particular characteristic, that it takes place without trembling. The extended hand does not show the slight tremulousness that may be observed in a normal individual who is weary of a fixed position. The subject's limb only shows those oscillations of rising and falling as a whole which seem to be connected with the respiratory movements.

To the absence of trembling must be added the absence of all signs that characterize effort and fatigue, as one may ascertain by following the tracings of respiratory movements. Respiration preserves its regular rhythm, while in the case of a normal subject it would show irregularities, revealing fatigue and the effort to conceal it. And, finally, the patient, if his testimony can be believed, does not experience any conscious sensation of fatigue.

These different physical signs are far from being invariable. I have seen patients with whom the tracings of respiration show after some time a considerable disturbance, an irregularity and haste which is undoubtedly due to the influence of fatigue, although they are much less than those that may be observed in the same subjects when the sensible arm maintains a

fixed position. During this time the subject declares that he feels no fatigue; I believe him to be sincere, and the direct contradiction afforded by the graphic method is very curious; certainly, we say, there is fatigue, the writing gives evidence of that, but it is unconscious, insensible fatigue.

It has been sometimes remarked that when subjects submit to the experiment already described, they experience a sensation not of fatigue but of pain. This pain may be located in a part of the body that is quite remote from the member concerned in the experiment; for instance, the precordial region, the side, or the shoulder of the opposite side. The patients clearly distinguish this painful sensation from the sensation of fatigue, and it seems to be a totally different thing.

I shall not dwell longer on the study of this phenomenon; it may suffice to refer the reader who wishes further details to the articles and works of Lasègue, Saint-Bourdin,* Liébeault,† Binet and Féré, Séglas and Chaslin,‡ Pitres,# etc. I shall only mention two particular questions.

The first is a question of construction: What is the nature of this cataleptic plasticity? It has long been described as a neuro-muscular phenomenon, and it has been said to originate in a state of hyperexcitability of the nervous centres—a convenient expression, which explains nothing and compromises no one. It seems to be admitted to-day, with more reason, that psychology has the right to claim these phenomena. The fact is that their psychological origin admits of no question

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* Catalepsie, p. 59. † Du Sommeil, p. 72.

‡ La Calatonie (Arch. de Neurologie, Nos. 44–46, 1888).

L'Anesthésie hysterique, p. 72.

in the case of the majority of the subjects; the sleight of hand necessary to set this plasticity in play shows it sufficiently.

Does it follow that we may be dealing with a simple suggestion? Yes, if you will; but it must not be forgotten that the conservation of the attitude may take place from several distinct reasons, each holding only for a particular case; in many cases, for example, the unconscious subject does not let his raised arm fall because he understands the experimenter's wish and wants to conform to it. "To make a member cataleptic," says M. Bernheim, "it is sufficient to raise the member, to leave it up some time, if necessary to declare that this member can not be lowered any more; it remains in a state of *suggestive catalepsy;* a hypnotized patient, whose will or whose power of resistance is impaired, retains the given attitude passively." It is a case of obedience, and this explanation seems to us correct for all cases where the phenomenon is produced by verbal suggestion, in cases where the subject has assisted at similar experiments on other patients, and, finally, in cases where the unconscious personality of the subject is sufficiently developed to take account of the operator's thought. But under other conditions, with other patients, it seems that the cause of catalepsy, although remaining psychological, is much more simple; it is genuine mental inertia, or what has been called a state of monoideism: the unconscious person submits, without understanding, without reasoning, and consequently without resisting, to the attitude that is given him. To use more exact terms, we will say: When an attitude is imposed upon the arm, a certain number of tactile and muscular sensations are stimulated which represent the attitude, and which, by persisting, be-

come a source of stimulation to the muscles whose contraction maintains the attitude; it is an automatism of sensations, images, and movements, possibly also of desires and rudimentary volitions, which is in every respect comparable to that which may determine a repetition of movements.* Thus we have sometimes suggestion by reasoning obedience, sometimes suggestion by automatism. In every case cataleptic plasticity has its origin in the mental state of the subject, and is explained in psychological terms.

II.

The conservation of an attitude is a simple action of adaptation; I may quote others which are more complicated.

If while the arm is raised a weight be placed on it, the extended limb can not bend suddenly; it makes an effort proportionate to the burden, to retain the position which has been given it. From this example one may even say that the insensible member shows some perspicacity, for if the extended limb be pressed very gently it falls, while if a ring weighing two kilogrammes is attached to it the arm remains in position. The reason is that in the two cases the intention of the experimenter is different, and manifests itself by different movements which the subject seems to understand clearly.

Complex movements of adaptation are produced by

* [This form of reaction which returns upon or sustains itself has been treated by James (Princ. of Psych., i, pp. 114 ff.), and in great detail by Baldwin (Mental Development, pp. 132 f., 194 ff., chap. ix) under the phrase "circular reaction." The latter author finds this type of reaction characteristic of imitation.—Ed.]

placing well-known objects in the insensible hand. Contact with these objects suggests their use and determines appropriate movements. The two first fingers being placed in the handles of a pair of scissors, the hand recognises the scissors and opens and shuts as if it were trying to cut something. If a dynamometer be put in the hands of a subject who is accustomed to the use of this instrument, and his fingers be placed on the handles, the hand presses unconsciously, once, twice, twenty times in succession and more. The characteristic of these adapted movements is just their continuance for a long time. The amount of pressure is generally a little lower than that given by the same subject when he presses voluntarily. It remains to call attention to the association or co-ordination of unconscious movements among themselves and with the impressions which serve as their point of departure. If both arms are drawn forward, the subject being seated and blindfolded, the whole body rises and the movements are co-ordinate to maintain the upright position, although the subject has not the least idea that he has been led to rise. But, generally speaking, the harmony of movements does not extend so far as to establish connections between the face muscles and the attitudes given to the limbs. If the anæsthetic fist be energetically closed the face does not take on an expression of anger; if the hands be folded the face does not assume an ecstatic expression. Nevertheless this influence of gesture on expression is in the logic of things, and it has been realized sometimes during the partial catalepsy of the waking state.* We there find a generalization of uncon-

* Pierre Janet, Automatisme Psychologique, p. 232. I have often had occasion to cite this important work in which these ques-

scious movements which is analogous to that which we have already pointed out in these unconscious repetitions.

The most curious movements of adaptation occur after painful stimulations, such as pinching the skin or burns. The unconscious person then performs movements of defence in order to escape from the pain; but it is not enough generally simply to prick the anæsthetic hand, though very deeply, to induce these movements of defence. If the process of pricking had been sufficient, as is the process now employed in the clinics of to-day, for investigating sensibility, physicians would long ago have perceived the movements of adaptation that we are about to describe. Really the pinches and pricks do not usually produce movements of defence or evasion. When it is pricked the insensible hand remains motionless without defending itself. To produce a sign of pain, a stimulation which has a meaning and determines the perception of a known object is necessary. Simple impressions induced by a point of compass or by a pin are like isolated letters, a, b, c, which awake no idea, while the complex impressions of a box or a penholder are like words which suggest an idea.

I may give one of the experiments that we planned. Place in the insensible hand of the subject who does not see his hand a box of matches and see if he can

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tions of mental dissociation are treated with great breadth of view. While I am treating of the same subject as that of M. Janet, yet my point of view is a little different from his. I have not sought, as he has, to present my own personal opinion with arguments, but have aimed mainly to give an exposition of results which are admitted by the majority of writers. For this reason I have omitted many of my own experiments which have not yet been repeated and verified by others.

light a match and avoid the flame. The results of the experiment have varied very much with different patients. One did not open the box, and even—a thing which was rather amusing—made a mistake in perception. She shook the box with all her might, no doubt confusing it with the dynamometer that had been placed in her hand some time before. Another patient under the same conditions showed more acuteness. Her insensible hand felt the box, succeeded in opening it after much hesitation, handled the matches before taking one, and when she had taken one did not try to light it, but held it motionless between two fingers. Here again a curious error of perception occurred: the hand believed it held a pencil and tried to write. I lighted the match myself and gave it to her. The thumb and first finger did not seem to be aware of the approaching flame, which burned and scorched the finger ends before it was put out by their touch. In the case of a third patient the recognition of the nature of the object was complete. After a moment of contact her hand grasped the box, felt it, seemed to recognise it, pushed out the drawer containing the matches, took one, scratched it on the side of the box, lighted it, and held it lighted and a little inclined. By degrees as the flame advanced her fingers retreated as if they were escaping from the heat, and when the flame reached the end of the match the fingers relaxed their hold and the match fell. Evidently the whole thing was perceived, and the hand even expressed by its movement the fear of being burned.

It will be seen from the foregoing that in spite of apparent insensibility it is possible to watch and set in play all kinds of sensibility by the use of appropriate means. But this is not all. An attentive study of the

preceding reactions shows that although they emanate from an idea, this idea is still incomplete on many points, since it results in certain cases in erroneous movements of adaptation and is incapable of correcting itself. Mr. Meyers, in criticising these experiments, remarked with reason that they remind one a little of those on instinctive movements of animals after certain nervous ganglia are removed. Just such instinctive movements are still possible, but without judgment.

We have already reviewed tactile, muscular, and pain sensibility. It remains, in order to complete the list, to mention sensibility of choice. By this expression is meant the tendency of certain patients to be influenced by this or that person only; as a somnambulist, for instance, sees and hears his hypnotizer only and obeys him alone. Perhaps the name sensibility should not be given to a phenomenon which is certainly much more complicated than the ability to perceive sensations. Be that as it may, this elective affinity may be observed in the unconscious phenomena that may be produced in the waking state of a hysterical patient, and I quote a very clear example. With some subjects the arm that is raised to produce a cataleptic state does not remain raised unless the usual experimenter holds it. Contact with another person can be recognised and distinguished, for often the command of the other person is not obeyed; and it is useless for him to lift the arm and try to keep it up. As soon as he lets go it falls down, and sometimes it even refuses to be raised, but stiffens to resist the effort.

We here encroach upon complex phenomena, whose analysis is difficult for the present, and might even be called in question were they not a continuation of what we have just studied. I shall not dwell on them at

length. They ought to be mentioned, however. It sometimes happens that when the insensible hand is pricked behind the screen it draws back hastily, and the subject cries, "You hurt me!" An unprejudiced observer who was present at this experiment for the first time would be justified in concluding that the subject had not lost sensibility; but attention must be called to the fact that the subject utters these words unconsciously. When he is spoken to again to ask if the pain was very severe, he replies that he has felt nothing, and he even insists that he has not said a word. His testimony, taken by itself, would undoubtedly appear suspicious; but if this subject shows also anæsthesia regularly established, and if he has unconscious movements greatly developed, we should be disposed to admit the sincerity of his assertion. We then come to see that the subconscious personage within him perceived the pain, and that this personage who can express pain by movements of the hand, can also occasionally express them by means of speech. When the observer's attention is directed to this side of the question he can detect quite often in the course of the experiment signs of impatience, agitation, and even words murmured in a low voice, all of which certainly belong to the unconscious person. It is well known that these phenomena are always difficult to interpret.

Finally, the unconscious subject may explain himself more explicitly by spontaneous automatic handwriting. This is the last observation that I shall give an account of, for here the phenomena which we are studying are easily confounded with spiritism, which will be the subject of another chapter. We have already seen that when the insensible hand is made to repeat a word containing a mistake in spelling, it may cor-

rect the mistake; this is a first proof of his initiative, but the unconscious subject is able to furnish many others. There are patients with whom it is sufficient to make the insensible hand write a single letter to produce the entire word that begins with this letter. If the letter P be traced, the subject writes Paris, and so on indefinitely. Sometimes after this first word the hand writes a second unconsciously, and indeed sometimes an entire sentence appears; and I have seen hysterical subjects with whom it is enough to put a pencil in the insensible hand in order to produce whole pages of writing, while the subject continues to talk of totally different things, and appears to be entirely unconscious of what his hand is doing. Everything happens in much the same way as in M. Taine's observation, reported above. In interpreting these observations we may recall the reservations which we have just made on the interpretation of the cries of pain of the unconscious person. Nothing proves that the patient is not shamming, and deception would be particularly easy in this case; but it is not on a solitary experiment that one's convictions should be based; a great mass of facts should be studied and their connections made out.*

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* [On these phenomena of subconscious adaptation the reader should consult the writers on "suggestion"—especially the works of Bernheim. I have recently reported detailed observations of similar character drawn from normal child life and from normal sleep conditions (Baldwin, Mental Development in the Child and the Race, 2d ed., chap. vi). I can not help thinking that M. Binet would have done better if he had kept to the use of the term "subconscious" instead of anticipating the doctrine of "unconscious personality" to explain these facts of adaptive movement. I have suggested the phrase "physiological suggestion" as being more neutral and safer (*op. cit.*, pp. 109 ff.). Ochorowicz uses the term "idioplasty" (Mental Suggestion, p. 25).—Ed.]

CHAPTER III.

INSENSIBILITY OF HYSTERICAL PATIENTS (CONTINUED).—GENERAL CHARACTERISTICS OF SUBCONSCIOUS ACTION.

I.

Now that we know the great variety of subconscious movements, actions, and reactions of all kinds that can be produced in an insensible member, it is not hard to see that all of them might be recorded by the graphic method with more or less convenience. To keep to the most simple conditions, pricks of a pin may be used as a means of stimulation. Each prick made in the insensible region will produce a slight responsive movement in the region to which the tambour of the graphic apparatus is applied. Three successive stimulations will produce three movements, and so on. In the same way, if a metronome is allowed to beat near the subject one gets muscular contractions corresponding to the rhythm of the beats of the metronome, stopping when they stop, hurrying when they quicken, and so on. The apparently very simple and quite elemental nature of these reactions has often caused them to be taken for reflex movements; but while of course we recognise that unconscious movements may be complicated with purely reflex movements, yet it must not be forgotten that these unconscious movements are of a highly psychical nature. We will give numerous proofs of it as we proceed.

The apparatus generally used for taking unconscious contractions is a myographic cylinder, having a wooden arm, which is put on the skin of the region to be investigated. It is hardly necessary to say that this method of recording is utterly inadequate when it is a question of studying not the detached contraction of a muscle, but the whole movement of a limb, for this movement causes all the muscular elements associated in this limb to interfere with one another in a most complex way. Sometimes one muscular group comes into action, sometimes another, sometimes a third. The apparatus, however, only informs us of the activity of a single group. It is a little as if we tried to recognise a musical phrase by listening to a single note. We need other means for the study of co-ordinated movements. In the meantime we may avail ourselves of the means at hand, remembering how insufficient it really is.

The use of the graphic method enables us to gain a more exact knowledge, and to some degree a deeper insight into the preceding phenomena, by demonstrating clearly the characteristics of the unconscious movements as to duration, extent, and form. M. Gley was the first to apply this method to the study of such movements, but his conditions of experiment differed somewhat from ours, and I shall take occasion to refer to his experiments later on.

Diffusion of Subconscious Movements.—Among the facts clearly elucidated by the graphic method, the diffusion of subconscious movements should be mentioned first. These movements do not occur in the insensible regions only, as we should expect, but in all movable parts to which the registering apparatus is applied.

This is especially the case for the respiratory movements of the chest. If a tracing be taken of the respi-

ration it will be found that the stimulations of the skin in insensible regions, in the case of some subjects, may modify it to such a degree that the presence of unconscious thought can no longer be doubted. In some cases I have seen the respiratory movement follow the rhythm of a series of pricks or of a series of beats of the metronome, even when the stimulations followed one another at intervals of a second only. Such an influence of external stimulations on movements of respiration loses its strangeness if it be explained by purely psychological causes; and we shall soon show that the patient has an unconscious intelligence which seems to bring about these results by some kind of intention.

Importance of the Movements.—The subconscious movements are generally greater and more important in insensible regions.

To understand this clearly, it is not enough to apply two registering apparatus to two symmetrical regions, one of which is sensible and the other not; the results obtained by this method will be utterly defective, on account of the difficulty of getting two records which are strictly comparable. The best way is to make two successive experiments on the same region, leaving the apparatus in place, and in one of the experiments doing away with the insensibility of the region by verbal suggestion. We then find that almost always, with the return of sensibility, the unconscious movements diminish, whereas the disappearance of sensibility under the influence of a new suggestion exaggerates them.

Form of the Movements.—The form taken by subconscious movements depends in the first place on the nature of the recording apparatus applied to the patient. If a dynamograph is placed in the insensible hand,

the instrument is pressed at each stimulation; if a tambour is placed on the muscles of the forearm the subject makes a very different movement with his fingers, but always appropriate to circumstances, thus showing once more that unconscious movements have the characteristic of movements of adaptation. If a pencil is placed in the hand, at every stimulation of the skin the pencil makes a line. This is the first experimental proof of the psychological character of these unconscious movements.

The nature of the stimulation may, in itself, also exert an influence on the form of the response. When the patient has a dynamograph in his insensible hand, short stimulation of the skin produces a short pressure of the instrument; if there is a longer stimulation the pressure is longer. The agreement between the stimulation and the response is particularly striking when the metronome is used. When the metronome was set going for the first time by the side of the subject who held a dynamograph in his insensible hand—but always behind a screen—generally nothing happened; the insensible hand did not understand that it was to press at each beat, and so remained immovable. But gradually contractions commenced, and once induced they continued regularly. Now, it is a very curious fact that if the metronome beats which have been following a very rapid rhythm out of the patient's sight, then suddenly stop, his hand does not stop at once, but contracts once more in whole or part, as if it anticipated another beat. These reactions of anticipation are still another proof that the unconscious movements are psychological in character.

Physiological Time of the Reaction.—The various experiments which we have just cited naturally sug-

gest the idea of measuring the reaction time of the unconscious movements. But I myself have been kept from doing so by the following difficulty: When a person's reaction time is taken he is informed of the experiment that is going to be made and is charged to react as quickly as possible. Now it is out of the question to make a request of this kind of an hysterical patient whose unconscious movements are being studied, since these movements are outside his personality and volition. Moreover, when the signal is given unexpectedly, the anæsthetic hand only moves later, after a long interval, perhaps several seconds; and if, on the contrary, several successive signals at equal intervals are given, there is anticipation of the signal and the response may be simultaneous. All these reasons conspire to make the experiment very difficult.

To perform it correctly it is necessary to take a roundabout method which requires some explanation.

I have not as yet spoken of the voluntary movements that a hysterical patient may make with an insensible member. I shall take up the study of these movements a little later, where it will appear that a voluntary movement is a very different thing, according as it is made by a healthy or an anæsthetic member. The principal difference is that of the time reaction; the movement of the insensible member is almost always slower than the other.

The movements of reaction may be taken by different processes—by breaking an electric current, or simply by pressing a dynamograph which is connected by an India-rubber tube with the pen of a recording apparatus. The latter process is less correct than the former, but it has the advantage of bringing out the following very curious fact: When the subject presses voluntarily with

his insensible hand, to respond as soon as possible to a signal previously agreed upon, we sometimes find that although he has been told to press only once he really presses twice. One of the pressures gives the mean time of reaction of the insensible hand; the other, on the contrary, generally much stronger, corresponds to the mean time of reaction of the sensible hand; and the difference between these two means is great enough to make it impossible to confuse them. Again, this second pressure is unconscious and involuntary, for the subject does not believe he has pressed more than once; and, finally, when there is but one pressure, which is usually the case, this single and voluntary pressure always shows the mean time of the anæsthetic hand. All these reasons lead me to believe that the additional reaction, of which I have just spoken, belongs to the category of unconscious movements; and the important conclusion follows that even for an insensible member the duration of unconscious reaction is almost equal to that of the conscious reaction of a sensible member.

In conclusion, I still insist on the psychological character of the reactions which we have just recorded; they are unconscious reactions, but they emanate none the less from an intelligence. It would be dangerous to forget this and to suppose that by using a registering cylinder and smoked paper we have avoided all danger of error from the psychological side.

II.

We may now leave the details of experiment, and endeavour to gain from them a general point of view. All the experiments were made with one uniform and

consistent plan, as I have said above—i. e., to keep from the patient the knowledge of the tests to which his insensible member is subjected, and also the reactions which are produced in this member. The result is that when the experimenter is not indiscreet enough to talk to the patient, the latter remains in ignorance of the experiment, and as a matter of fact may be thinking of totally different things. He has no conscious sensation of what is happening in his limb, provided there be in the course of the experiments no return of sensibility—a possibility which it is well to guard against, for it may be produced when too great a number of stimulations are made on the same region.

The patients who show these phenomena are quite numerous; I myself have been able to study more than thirty. And, further, since my researches and those of M. Féré were published, they have been confirmed by the similar observations of other authors (Babinski, Onanoff, Blocq, P. Janet, etc.), which seem to prove their accuracy.

We must bear in mind that, among hysterical patients, the men do not generally lend themselves well to these researches. Whether the insensibility of hysteria in men is more serious, more profound than in women, or for some unknown reason, it is sometimes difficult to induce subconscious movements in an insensible limb of a male subject. With women an important distinction also should be made: those who have been frequently hypnotized show more fully developed unconscious movements than other women. The fact of repeated hypnotizing is of far more importance than the degree of anæsthesia, for after my experience I am prepared to say that no regular relation exists be-

tween the degree of anæsthesia and the development of unconscious movements.*

The foregoing facts demonstrate the true nature of hysterical anæsthesia. It has been often suspected that hysterical insensibility, in certain cases, does not really suppress sensation, as is the case in anæsthesia due to organic causes. This surmise is now undisputed fact. The movements of repetition and adaptation which we have just seen induced in a member completely deprived of conscious sensibility could not have been produced if there had been no sensation left. To enable the hand to grasp the pencil slipped between the fingers, to open a box of matches, to press a dynamograph, or simply to repeat faithfully a movement of flection communicated to one of the fingers, it is necessary, above all, that certain impressions be received by the so-called anæsthetic skin surface. So there is a very real perception, although the subject is not aware of it—an unconscious perception—and the hysterical anæsthesia, which then appears as a suppression of consciousness, may be called *anæsthesia from lack of consciousness.*

Again, the hypothesis should go further. To explain the growth of unconscious actions we must not merely suppose unconscious sensations; isolated sensations do not produce anything. In examining the principal observations that we have collected, we have seen phenomena of memory and of reasoning, so that these unconscious movements reveal to us the existence of an intelligence other than that of the ego of the subject, and which acts without his concurrence and even

* [The facts of this paragraph have all been used by others to support the view that the phenomena are entirely due to suggestion.—Ed.]

without his knowledge. This is a necessary conclusion; it forces itself upon us. However one may conceive this secondary intelligence as accessory or parasitic to some extent, yet it is certain that with some subjects it exists and acts.

It is true that among many hysterical anæsthetic patients, and especially among men, nothing like it can be shown; but we must not hastily conclude from that that their insensibility is of a different nature. The manifestation of unconscious movements and of an intelligence in general is liable to an important condition which may fail of realization—namely, muscular co-ordination. In order that a passive movement communicated to the arm be repeated, it is not sufficient that it be perceived; the perception must be co-ordinated with the corresponding movements of response, and all must be co-ordinated. It is evidently co-ordination that is lacking with some of the subjects in whose cases unconscious movements can not be induced. If by any contrivance whatever this co-ordination is established, it frequently happens that the unconscious movements appear. For example, note the following experiment which I have often carried out: A dynamometer is placed in an insensible hand which is hidden behind a screen; nothing happens; but if the subject is asked to press the instrument several times voluntarily in succession, at the same time looking at his hand, and if the same instrument is afterward put back in the anæsthetic hand behind a screen, the hand presses it then unconsciously. This shows that the preliminary experiment has formed the co-ordination which was lacking between the contact of the instrument and the action of pressing. This co-ordination once established, unconscious movements appear.

III.

As an appendix to the foregoing studies I may cite certain experiments which were made on the eyes of hysterical patients. I shall not dwell at length upon them, for the question raised is a complex and somewhat obscure one; but I must speak briefly on the subject because the study of visual hysterical anæsthesia has led some authors, who do not generally agree with those whom we have had occasion to quote so far, to admit that hysterical anæsthesia is insensibility of a psychical nature.

Charcot and his pupils (particularly M. Landolt) have shown that in hysteria the special sense organs, and especially the eye, share in the insensibility of the skin. Visual anæsthesia is seldom total; generally a contraction of the field of vision is noticed, a restricted perception of colours, and various difficulties in accommodation.

For a long time endeavours have been made to ascertain the mechanism of the retinal anæsthesia of hysterical patients. Writers* who have been engaged upon the question have found certain complex peculiarities which are so difficult to understand that they have sometimes questioned the reality of the anæsthesia. I may give an example: There are some hysterical patients who perceive certain colours very well when they use both eyes together, and who do not perceive them when they use one eye only, the right or the left. Other hysterical patients complain of blindness of the right eye when the left eye is closed, and yet they see with this right eye, without any difficulty, when both eyes are open.

* Pitres, *op. cit.*, p. 59.

The proper conditions for accurately observing this visual trouble are somewhat as follows: Use a box which has two holes for the eyes, and which has on the inside of the bottom two points of different colour, one on the right side, the other on the left; then, by an ingenious arrangement, the subject is made to see with his right eye the point at the left, and with his left eye the point on the right. This instrument is employed in order to defeat simulation, especially among those ignorant of optics. Any one who pretends that he can not see with his right eye will say that he does not see the point which seems to him to be on the right, but that is the point which he really sees with the left eye. Now, how does the hysterical patient behave who does not see with his right eye? Quite differently; when he looks in the box with both eyes open he sees the two points, the right and the left; he really sees therefore with both eyes.

To explain this fact of observation, which, strange as it appears, is nevertheless entirely accurate, some writers have resorted to an anatomical hypothesis. They have assumed that two sorts of visual centres exist in the cerebral cortex. There are two centres which are each monocular, that is to say, each connected with vision by a single eye; and there is a third which is binocular, that is to say, which is peculiar to double vision and unites the two eyes. It is held that in the case of hysterical patients who do not perceive colours correctly with one eye, the monocular centre of one eye or of both is affected; but if the patient uses both eyes together properly, another centre of vision—the binocular centre—comes into play; and as this centre is not impaired, the perception of colour is then exact.

It would be useless to discuss at length an anatomical hypothesis which is at variance with all that is known on the hysterical anæsthesia of the skin. Anæsthesia of the retina, which is, in fact, only a part of the skin become sensible to light, can not be produced by any other means than those which produce anæsthesia of the rest of the body. Moreover, certain special experiments completely overthrow the distinction claimed between the monocular and the binocular centres. I may cite two, and that will be sufficient. If a scale of printed characters be placed before the more anæsthetic eye of a hysterical patient (the other eye being closed), at a distance at which this eye can no longer read them, it is often enough to put a pencil in the subject's hand to cause this hand to write, unknown to the subject, certain words which occur on the scale. The use of automatic handwriting shows, therefore, that although reduced to its pretended monocular centre, the subject continues to perceive the letters. Opening the other eye only makes this perception conscious.

Another example: Monocular blindness was suggested to a hysterical patient—the suppression of the vision of the right eye. The left eye of the patient was then closed, and a book placed before her right eye, and, although she declared she saw nothing, the pencil placed in her hand reproduced the words of the book. How would this automatic writing be possible if the monocular centre for vision, which alone is called upon to act in this experiment, were paralyzed?

Another hypothesis of an entirely different nature was put forward some years ago by M. Bernheim.*

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* De l'amaurose hystérique et de l'amaurose suggestive, Revue de l'hypnotisme, 1886, p. 65.

This second hypothesis, I may say at once, seems to me to be much nearer the truth than the first. M. Bernheim clearly saw that the cause of retinal anæsthesia is psychical. Now, all the studies that we have quoted on hysterical anæsthesia lead us to the same conclusion—whatever form it may take, wherever its seat may be, hysterical anæsthesia is psychical in its nature.

Unfortunately, however, M. Bernheim has never clearly expressed his thought; he is doubtless unaccustomed to the language of psychology. He has used terms that are obscure and at times contradictory; but on this it is useless to dwell. The essential point is that he has repeated some of the experiments already cited, and has reached the important conclusion that an hysterical patient sees and perceives, although not conscious of it, under certain conditions where all perception seems to be done away with. Under this head, therefore, M. Bernheim's experiments and theory deserve mention.

I could not dismiss this complex question, however, the difficulties of which I have purposely simplified a little, without indicating definitely this obscure point, which recent researches have emphasized. It seems to be ascertained that, in a certain number of cases at least, anæsthesia of the retina is anæsthesia through loss of consciousness; but it remains to be understood how a perception, which is only subconscious, so to speak, during monocular vision, can become conscious again during binocular vision.

CHAPTER IV.

INSENSIBILITY OF HYSTERICAL PATIENTS (CONCLUSION).—THE THRESHOLD OF CONSCIOUSNESS.

It may happen that a hysterical patient does not perceive certain sensory stimulations because they are not intense enough. These unperceived stimulations are not without effect, however. They may produce a series of intelligent reactions, which, like the initial stimulation, remain outside the consciousness of the subject, and constitute, if necessary, a secondary consciousness or personality more or less rudimentary. In order to gather up our ideas, let us suppose the case of a hysterical patient who shows on visual examination, made according to ordinary methods, a deficiency in visual acuteness; the patient placed at such a distance from a scale of printed characters can not read a particular word. We find, nevertheless, that if his attention is concentrated for a moment on this word, which he is not able to read, the proof may be forthcoming that it has really been read and perceived unconsciously; for his automatic handwriting may reproduce it and even enlarge upon it. The word may become a point of departure for a series of thoughts which are interpreted in gesture and action. If the word is an order like "rise," the action may be performed, etc.

The cause of the division of consciousness is here

found, therefore, in the feeble intensity of the stimulus.

If we examine closely we shall find that an analogy exists between the two divisions of consciousness, caused respectively by anæsthesia and by the feebleness of the stimulation. Anæsthesia may be compared, up to a certain point, to a functional sluggishness of the sense organs—a sluggishness from which the organs are not released, except under the influence of powerful stimulations. Stimulations of average intensity are not perceived. Let us suppose the least anæsthetic organ, or, to use the same figure, the one most easy to release. If then the stimulation is lighter the result will be the same as in the case of complete anæsthesia—the organ will not perform its function, the stimulation will not be perceived.

In support of this interpretation, which is, unfortunately, a little vague, a certain number of curious experiments may be appealed to. I shall only cite two. The first shows clearly that the anæsthesia is in proportion to the diminution of the intensity of the stimulations. To understand this we must remember that in the cases classed as hemianæsthesia—when a hysterical patient is insensible in part of his body—the sense organs, and particularly the eye on the insensible side, are generally affected, but less so than the skin. Let us take the example of a patient who is affected with hemianæsthesia of the right side and whose right eye shows a contraction of the visual field and a loss of the sense of certain colours. Violet, say, is not perceived, but red continues to be perceived by the right eye. The left eye on the healthy side perceives all the colours, and especially red. Red is then perceived by both eyes, but in a different way. It is precisely here that

the intensity, the force, in short, the quantity of stimulation becomes important. As a matter of fact, the perceptible minimum is not the same for the two eyes, for the same piece of red paper to appear to the right eye it must present a greater surface than that necessary to produce a sensation of red in the left eye. With a certain size the paper appears red to the left eye and gray to the right eye. In short, in consequence of the slight anæsthesia which it shows, the right eye requires a stronger stimulation in order to perceive than if it were normal. Anæsthesia has the effect, then, of changing the perceptible minimum. In other words, it acts as if it diminished the intensity of the stimulation.

A second experiment which can be made on the same subject corroborates the first. If two glasses, one red, the other green, be fitted into a pair of spectacles, in looking through them the complex impression is given of an irregular alternation of red and green (this is what is called the rivalry of the visual fields). An hysterical patient does not experience this alternation; he only perceives the colour of the glass which has been placed before his left eye—that is to say, before the less anæsthetic eye—an evident proof that in the rivalry of the two visual fields the stimulation received by the left eye is the stronger since it always has the advantage.

What is called the threshold of stimulation is not, therefore, in the case of a hysterical patient, a limit up to which a stimulation produces no psychological effect whatever. Slight stimulation up to a certain minimum of consciousness produces phenomena of subconsciousness. This is an interesting fact and one which throws some doubt on an opinion generally accepted. It is held on the basis of experiments in psycho-physics that

consciousness accompanying sense stimulations is not continuous, but discontinuous. If, it is said, by some contrivance it is possible to diminish gradually and very slowly the intensity of a given stimulus—for example, the ringing of a bell—a certain degree of stimulation may be reached where consciousness is entirely suppressed. Beyond this point there is no mental effect—nothing further is felt or perceived by consciousness. It is easy to see the weight of this conclusion. It might lead to a whole theory of the distribution of consciousness in the world. I am inclined to believe, however, without being too positive, that the basis of this theory is not sound, for its point of departure is the rather naïve belief that the consciousness which is personal to us, and in the full possession of which we find ourselves, is the only one of the kind in us, and the only consciousness there is anywhere. But the experiments we have cited show that in the case of hysterical patients the threshold of consciousness has only a relative value. It is simply the threshold of a consciousness. Underneath it there are others, and probably consciousness disappears by insensible transitions downward exactly like all the physical phenomena with which we are acquainted.

There is no doubt of the slight quantity of stimulation which is enough in the case of certain subjects to rouse consciousness. But we are here bordering upon questions which are still very obscure and which will doubtless be the object of important discoveries in the future.

Under the head of suggestion, however, I may mention some unfinished experiments of mine which seem to show that the unconscious subject may have quite remarkable acuteness of perception. I succeeded by

experimenting on the touch sense of an insensible member in getting registered by automatic handwriting stimulations so slight and delicate that the normal sense would never have perceived them. I placed on the insensible skin on the back of the hand, on the neck, etc., letters and small objects in relief, and the subject's hand often succeeded in drawing exactly the letter and the object. According to the calculations that I have been able to make, the unconscious sensibility of an hysterical patient is at certain moments fifty times more acute than that of a normal person. Perhaps under certain circumstances the so-called action of thought at a distance may be explained by this really extraordinary over-acuteness of sense.

CHAPTER V.

DISTRACTION.

I.

It is possible to observe multiple consciousnesses which are not the result of anæsthesia, and this is very important, since it enables us to study mental disintegration in a greater number of cases. It also gives to these phenomena more importance than if they existed only in a particular class of patients.

In the state of *distraction* the same effects may be produced as in anæsthesia. This state of distraction is a particular attitude of the mind which at first sight seems to have no connection with local anæsthesia, nor to involve suppression of visual and tactile sensations. But it is not difficult to prove that a close relation exists between the state of distraction and the insensibility of hysterical anæsthesia, which, as we have seen, is essentially psychical.

We know that attention is an effort of the mind and of the entire organism, and increases the intensity of certain states of consciousness. If brought to bear on a perception, for example, attention makes it more swift, more exact, and more detailed. This is the case, but whether by facilitating the accommodation of the sensorial organ when in use, or by producing memory images appropriate to the perception of the object, or

by some other processes, we do not know. This adaptation of all the available forces of the organism converging on a single event, which may be a sensation, an image, a sentiment, etc., produces a temporary state of monoïdeism. When our attention is brought to bear forcibly on a thing we think for the moment of nothing else, and every one knows that if we are absorbed by interesting reading others may talk around us while we do not hear them. In the same way when we are impatiently expecting a person and see him coming a long way off, say in the street, he is quite separate for us from the crowd about him; if we listen for his step we can catch this faint sound in the midst of a host of other sounds much more intense, which we temporarily cease to hear. Attention, then, one might say, reduces our sense organs to a state of special hyperæsthesia which is local, or systematized, and relative to a particular sensation, and it also produces at the same time a transient state of least sensibility, or we may even say of anæsthesia, for everything that is not this sensation or in some way connected with it. Attention is accompanied by distraction; one can not pay attention to certain things without being distracted from others. Attention is the light focus and distraction is the reverse—the shadow, in consciousness.

Now, if attention can produce mental anæsthesia indirectly, it can also produce a division of consciousness, since the two phenomena are the same up to a certain point. Our present study is connected therefore with the preceding, and we may find that it is the continuation of the same study under a little different form.

Distraction is transient anæsthesia, we have said, and anæsthesia (psychical) is permanent distraction. An hysterical patient whose arm is insensible finds him-

self in very nearly the same state of mind as if he never thought of his arm, or if he were indifferent to it, or as if he had concentrated the power of his attention on other things. So we may try experiment with it: we may concentrate this hysterical patient's attention on a certain point and examine the special effects of the division of consciousness produced by distraction.

The first experiments on hysterical patients were made by M. Pierre Janet. To his researches we owe a very detailed study of distraction in its relation to unconscious phenomena.

The production of unconsciousness through distraction rests on well-known psychological facts, but nevertheless I confess that I long hesitated to enter upon this research for want of sufficient objective evidence, since the state of distraction can not be determined as definitely as that of anæsthesia. M. Pierre Janet is right in not allowing himself to be checked by scruples that I myself admit are a little exaggerated.

The experiments that he has made are easier to repeat and verify than one would believe at first sight. One would imagine that however complete the attention might be, the distraction it causes would never be equivalent to genuine anæsthesia. This would be true for a normal person. If we try to distract him utterly, to occupy his attention completely with other things, we have much trouble in doing it. If we engage him in conversation, or read an interesting work to him, he makes a sort of mental reservation that keeps him from yielding himself entirely up to these occupations, and in spite of himself his attention wanders from time to time and becomes fixed precisely on those points which we wish to keep from him.

The case is entirely different, however, with hys-

terical patients. It is almost incredible the ease with which the attention of these patients can be distracted; even while they chat with another person they forget others who are in the room. They have, as M. Janet says, *a contraction of the field of consciousness.* Profiting by the state of distraction thus produced, one has only to approach from behind and pronounce some words in a low voice to place himself in relation with the unconscious person. The sentence is not heard by the principal personality, whose mind is elsewhere, but the unconscious person hears it and acts upon it.

By means of very simple contrivances, suggested after slight practice, one begins to find that communication is established; he gives trivial orders to the unconscious subject, telling him to put his hand on the table, or to shake his head, etc. If the order is performed, and if the principal person seems not to hear and continues his occupation of reading or conversation, it is probable that the division of consciousness is already in operation, and one has only to continue the use of the same processes in order to have this division show itself more completely.

It is indeed very curious to see how rapidly the unconscious is developed in experiments of this kind. The effect is more striking, although perhaps less trustworthy, than in experiments made upon anæsthesia. What we have studied already in the chapters on hysterical anæsthesia amounts really to comparatively little —some slight movements of the hand or of the body, detached movements that must be closely examined for signs of intelligence; and it is a piece of exceptional good fortune if the unconscious utters words. By such a method one is convinced that this unconsciousness exists, and is even able to demonstrate its existence

clearly, but one does not know precisely what it thinks nor what it is. If one endeavours to chat with him by the medium of handwriting, putting a question to him or giving him an order, the desired reply is not obtained, and the order is not performed. If the hand is made to write "rise," the subject most often does not rise. The insensible hand contents itself with spontaneously repeating the order a second time in writing.*

The process of distraction used on the same persons gives much the best results, for the question put receives an intelligent answer, and the order given is executed in its true meaning. There is then a great difference in the effects of the two methods; it is, of course, only a difference of degree, which depends upon the amount of development of which the unconscious person is capable. Moreover, there are patients who make the transition and with whom the order, in whatever way it may be given, is promptly carried out. Nevertheless it may be of service to mention a difference which has great psychological interest.

Nothing is more instructive than the conversations that may be held with the unconscious person. The experimenter should, in the first place, tell this person how he will convey his replies, for there are many ways. There is one, let us say, which consists of gestures of the hand—it may be agreed that the subject will answer yes or no by shaking his first finger. This does not accomplish very much. One may also resort to automatic handwriting by slipping a pencil in the hand, and

* Pierre Janet has attempted to show that in these and other analogous cases an impersonal consciousness is produced, with no idea of the ego (*op. cit.*, p. 42); in this recalling an old theory of Maine de Biran, and citing the ingenious ideas of Fouillée on the degenerations of consciousness.

then instead of directing the hand—for in that case it would repeat indefinitely the graphic impulse communicated to it—ask a question in a low voice: "What is your name?" etc. The hand writes the answer. It might also be agreed with the unconscious subject that he reply verbally. An exchange of ideas once established, one comes to understand the unconscious subject well, and to solve a host of problems of this kind. I shall mention in the third part of this work several instructive applications of this method of study.

For the present we may examine four conditions: First, the perceptions of the subconscious person; second, the extent of his memory; third, the idea which he gets of his personality; and fourth, his suggestibility.

The Perceptions of the Unconscious Subject.—As regards perception, the most important observation I have to make is that the subconscious person perceives the sensations induced in the anæsthesic regions. For him the anæsthesia does not exist; it only exists for the attention of the main person. It is also possible, by using the different kinds of records that we have mentioned, to measure exactly the sensibility of a so-called anæsthesic region. An æsthesimometer is moved over the skin, and the subconscious person responds by signs whether he feels one point or two. M. Pierre Janet, who used this method, found that the sensibility may be quite delicate—as delicate as that of normal regions. I am inclined to believe that it may be more so.

It is not definitely known whether a subconscious person also perceives what the normal consciousness perceives or not. Writers are guarded on this point, and further study is necessary.

The Memory of the Unconscious Subject.—As to

memory, we may rest assured that the subconscious person remembers faithfully everything that he has been made to do in a former state. The methods are the same. If a fact has been told him eight days or a year ago, the fact is not forgotten; and if one gets into communication with him by the means described, he can be made to repeat what has been said to him. It is therefore the same unconscious subject that is called up at different times—the memory proves that he remains the same in successive appearances. Yet an important circumstance must be taken into account which sometimes alters the results. The unconscious subject has elective affinities. Called into existence or developed by one person, he remembers this person; he obeys him in preference to others with the compliance which is one of the characteristics of somnambulists. The unconscious subject who is in the habit of communicating with a particular experimenter can not will to respond to another. The result is that a newcomer is often not able to find the subconscious phenomena in a subject who has been studied by another experimenter habitually. I have already pointed out the similar case in the state of anæsthesia, showing that a raised anæsthesic arm does not always obey orders to keep its position. When one person raises it it may remain so and then fall back for another person. It is an elective phenomenon—that is to say, a very complex phenomenon involving sensations, perceptions, sympathies, and antipathies. It is not surprising to find the same phenomena under the other conditions under which unconsciousness is strongly developed.

Personality of the Unconscious Subject.—We may now pass on to the story of personality. Into the state of distraction a complete personality is produced. In

fact, as M. Pierre Janet remarks, "The subconscious handwriter constantly uses the word 'I'; it is the manifestation of a person precisely as in the subject's normal conversation. . . . One day I had the following conversation with Lucie, while her normal self was chatting with some one else: 'Do you hear me?' I said. She answered (in writing), 'No.' 'But you must hear in order to reply.' 'Yes, of course.' 'Then how is it?' 'I do not know.' 'There must certainly be some one who does hear me?' 'Yes.' 'Who is it?' 'Some one else, not Lucie.' 'Ah, indeed, another person. Do you want to give this person a name?' 'No!' 'Yes, it will be more convenient.' 'Very well, Adrienne.' 'Then, Adrienne, do you hear me?' 'Yes.'"

It is plain that M. Janet, by christening this unconscious person, and, more still, by declaring that some one must exist in order to answer him, aided materially in the formation of the person; he himself created her by suggestion. The method of distraction has this advantage, or, if you will, this disadvantage, that it allows suggestion to exercise a very considerable power.

Nevertheless it should be carefully noted that if the personality of "Adrienne" could be created, it is because the suggestion met a *psychological possibility*; in other words, there were disaggregated phenomena existing there apart from the normal consciousness of the subject. This disaggregation prepared the unconscious person, and in order to the collection and crystallization of these scattered elements very little was needed. Moreover, the experiment only duplicates the natural cases; there was no special suggestion in the minds of Félida, Louis V——, or the others where a separate part of the normal consciousness settled into this same sort of secondary personality.

It should be noticed that the subconscious person generally speaks of the normal ego in the third person, and calls it *the other one.* If this second person is asked if he is indeed the normal person, he usually protests and pretends that he has nothing in common with this person. I have seen a similar case: A patient of M. Pitres, who, when she was thrown into a state of somnambulism, spoke of the other as the waking person.

Suggestibility of the Unconscious Person.—We now come to the suggestions that an unconscious person may be made to carry out. Suggestibility should be considered, we have seen, as one of the most marked characteristics of the mental state that distraction produces. By suggestion here we mean—for this vague word ought always to be defined—an idea of which a person makes intelligent use. It is intelligent suggestion in contrast to automatic suggestion. In the division of consciousness that results from anæsthesia, suggestions thus defined often produce no effect for want of sufficient intelligence to comprehend them; the subject's actions and movements are the result of an automatism of sensations and ideas. In the present case, however, the unconscious person whom distraction has severed from the normal personality possesses sufficient intelligence to understand the meaning of the order given in a low voice. He is then able to perform movements and actions of whose origin the normal consciousness is ignorant. A psychological situation is then produced which we have already met once in the above and upon which it is in order now to insist. Here is a hysterical patient who has been told, while she is seated and chatting with another person, to rise and take out her watch. On account of her state of distraction she did

not hear what was said to her. The subconscious personality, however, heard it and is going to perform it. Up to this point nothing could be more simple; everything is understood. But a difficulty now presents itself. In order to obey the order the hysterical patient must rise and leave her chair. She must put her hands to her waist and draw out her watch, as she has been told to do. How can these actions be accomplished? The conscious and the unconscious personalities are about to come into each other's presence face to face. Will they see and recognise each other?

It is impossible to give a simple reply to this question. There have been a great number of variations in different subjects in the performance of actions induced during a state of distraction. Everything depends upon the subject and the nature of the suggestion. Generally, according to the account of M. Pierre Janet whom we take as guide in these descriptions, the chief consciousness of the subject remains alert but unaware of the action which is performed. If in a low tone she is told, "Take off your apron," the hands move very softly and the apron is taken off—it drops without being noticed by the normal ego.

"One day," says M. Janet,* "Léonie was engrossed in chatting with some persons present and had completely forgotten me. I ordered her in a low tone to pick some bouquets of flowers to offer to those around her. Nothing could have been more curious than to see her right hand pick the imaginary flowers one by one, place them in her left hand, tie them with a string equally real, and gravely offer them, all without Léonie's having the least suspicion of what she was

* *Op. cit.*, p. 239.

doing and even without interrupting her conversation."

There are many hysterical patients to whom it is not possible to give suggestions in their waking state, or, to be more exact, for it is all so relative, patients who are able to resist suggestions from some experimenters; they inquire into the order and if it does not please them they will not perform it. Suggestion by distraction surprises them and obliges them to obey, for the head personality does not hear the suggestion and consequently can not oppose it, and the action ordered is performed unknown to the patient itself.

This convenient method of suggestion may, on the other hand, become the occasion of great mistakes of experimentation.

It is well for experimenters to keep in mind this unconscious personality which exists in the case of hysterical patients, even in their waking state. One should be on one's guard and understand clearly that although a conscious hysterical patient neither sees nor hears, still the unconscious personality can see and hear and consequently receive suggestions. In short, in studying an hysterical patient everything takes place just as if one were experimenting on the most artful of impostors.

The danger is as great as it is permanent. It exists in all the states, natural and artificial, so numerous and so varied, through which an hysterical patient may pass.

II.

We have now completed the description of the methods that reveal the multiple consciousnesses and secondary personalities in waking hysterical patients. The conclusions which we have reached are too com-

plex to be put in a single formula. The most important fact to be singled out is the division of consciousness—that is to say, the juxtaposition of several psychological existences which are not confused. We reached this conclusion above when reporting somewhat different researches—i. e., those on the partial survivance of a somnambulistic state during the waking state. The circumstances under which, according to Gurney, this survival can be demonstrated will be recollected. Automatic handwriting induced during the waking hours shows memory of what happened during the somnambulistic state, and from that we may conclude that the somnambulistic ego exists to some extent during the waking period.

It remains to be shown, to complete the demonstration, that the secondary ego constituted during anæsthesia or distraction is identical with the somnambulistic ego; that it is the somnambulistic ego itself which shows itself here and there under slightly different conditions. M. Pierre Janet has established it by experiments which admit of no doubt.

The phenomena of memory served for this demonstration. It is through memory that coexisting personalities have been successfully distinguished and boundaries accurately defined. It is also through memory that we have learned that psychological states that appear at different times and under different conditions are in reality identical. If the subconscious person in his waking state be given an order or an idea by words murmured in his ear, the normal consciousness neither hears nor learns anything. Now, if the subject be thrown into a somnambulistic state by the methods described above (Chapter III) and he be questioned, it will usually be found that he has retained the memory

of the words that were uttered and can repeat them. If he remembers it is because he has come into the same psychological condition as the subconscious person of the waking state; it means that it is he who has heard. Memory serves to reunite these different states and shows us their identity.

It is important to add that these continuities of personality, of which we have just given a schematic description only, may become very complicated. It sometimes happens that the memory which one is trying to find is not revived in the first somnambulistic state. To reproduce it it is necessary, when the subject is once in a somnambulistic state, to hypnotize him again, as if he were not already in that condition. In this way, with some hysterical patients, a second and even a third somnambulistic stage is produced which is distinguishable from the preceding ones by a different state of memory. These facts have been observed by Gurney, Pierre Janet, and Jules Janet.

Another consideration, also borrowed from the foregoing writers, leads us to connect the somnambulistic ego with the subconscious ego of the waking state, showing, namely, that the subconscious actions of the waking state develop into somnambulism.

"I had already noticed," M. Pierre Janet reports, "that two of my subjects especially, Lucie and Léonie, frequently went to sleep, in spite of my efforts, in the midst of experiments made on unconscious actions in the waking state; but I had attributed this sleep to my presence alone and to their habit of somnambulism. But the following fact caused me to see my mistake: M. Binet had had the kindness to show me one of his subjects in whom he was studying subconscious actions by means of anæsthesia, and I had asked him to allow

me to reproduce the suggestions to this subject by means of distraction. Everything happened exactly as I had expected. The subject (Hab.), thoroughly awake, chatted with M. Binet; standing behind her, I made him shake hands without his knowledge, reply to my questions by signs, etc. Suddenly Hab. stopped talking with M. Binet, and turning toward me with her eyes closed, continued correctly by *conscious speech* the conversation which she had commenced with me by *subconscious signs*. Moreover, she had nothing more to say to M. Binet; she no longer heard him; in short, she had fallen into a state of elective somnambulism. It was necessary to rouse the subject, and on awaking she had, of course, forgotten everything. Now, Hab. did not know me in any way; it was, therefore, not my presence that had induced sleep. The sleep was then clearly the result of the development of subconscious phenomena, which had absorbed and effaced the normal consciousness." *

All these experiments lead us to the same conclusion. The subconscious that we have just seen in operation is identical with the somnambulistic consciousness; it is a part of the somnambulistic life that survives in the waking state. Some time ago M. Richet, anticipating the results of experiments and allowing himself to be guided by theory, assumed that a state of hemi-somnambulism existed with many people even when in their waking state, which enabled a consciousness which was really not their own to perform intelligent actions.

"Let us suppose," he said, "that with some individuals such a state of hemi-somnambulism exists as to

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* *Opus cit.*, p. 329.

allow a part of the brain to conceive thoughts, receive perceptions, without the ego's knowledge. The consciousness of this individual persists in its entirety apparently; yet very complicated actions are performed outside of consciousness without the voluntary and conscious ego appearing to feel any modification whatever. There is another self in him which acts, thinks, and wills without the primary consciousness—that is to say, the reflective conscious ego—having the least idea of it." *

M. Richet is right in giving to this state the name of hemisomnambulism. This term indicates the relations in which this state stands to genuine somnambulism; and, further, it gives us to understand that the somnambulistic life which shows itself during the waking state is overcome and suppressed by the normal consciousness as it reasserts itself. A somnambulistic person loses his liberty of conduct during his waking state; his sphere of existence is quite contracted, and but for the study of memory, which serves as a guiding thread in our researches, we should never have known that these two beings were other than one.

* Rev. philos., 1884, ii, p. 650.

CHAPTER VI.

VOLUNTARY AND UNCONSCIOUS ACTIONS.

I.

Up to the present we have seen how different states of consciousness may exist separately and without confusion in the same person, giving rise to the simultaneous existence of several consciousnesses, and even in certain cases to several personalities. I have insisted especially on the separation of consciousnesses; it was the first fact to be clearly demonstrated. We must now show that if the consciousnesses are separate from a certain point of view, they may be reunited from another point of view, and they may retain both relations. These are very complicated phenomena, and very interesting for psychology.

This question has no history, so to speak. I believe I was the first to treat it in my articles in the *Revue Philosophique*, and M. Pierre Janet has added further curious facts. I shall show in the third part of this book how much light the study of the relations between distinct consciousnesses throws on the classic suggestions of somnambulism, of which a host of details have hitherto remained unexplained. The relations of two consciousnesses may take two distinct forms—antagonism and united action. In the first place, we shall study their collaboration in this chapter.

If the movements and actions of a subconscious person, who has lost conscious sensibility in one or more of his limbs, be carefully noticed, there will be no difficulty in catching the subconscious person in the very act, at a time when he interferes to aid the thought or the will of the head consciousness by his silent work. But the part played by an unconscious person can not be clearly understood unless one has an idea of normal motor activity.

This motor activity has been well analyzed by William James in his remarkable memoir on "The Sense of Effort." When, as he says in summing up, a normal subject, with his eyes open, performs a simple or complicated voluntary action with a member which is neither paralyzed nor insensible, this movement involves at once certain preparatory states, which are: First, a preliminary idea of the end the subject wishes to attain; second, a *fiat*, an ictus of the will, and following, the passage of the will into action; third, other elements intervene of a physiological kind, the appropriate muscular contractions; and then, fourth, a psychical result, the sensible perception of the movement as it is performed.

Setting aside the muscular contractions which are of a purely physiological nature, and also setting aside the *fiat* of the will, which is difficult to analyze and with which we shall not concern ourselves in what follows, two fundamental facts remain: First, the representation of the movement before it is performed; and, second, the perception of the movement as it is performed. It is under these two forms that our intelligence comes into relation with the motor activity of our limbs—a representation anterior to the movement and a perception posterior to it; a *model* state of con-

sciousness and a *copy* state of consciousness, so to speak.

Of what use is the anterior representation? It determines the nature and form of the movement; it is a mental model of the movement, a model that our limb tries in some measure to copy. If I wish to deal a blow with my fist, and if I think of my action some time before performing it, I have a representation of my closed hand and my raised arm. What does this representation of the action consist of? Perceptions of movement as repeated. In the case of a normal subject this representation is very rich—it is composed of visual, tactile, muscular, and other images. One sees his raised fist, and at the same time has the anticipated sensation of what he is about to experience in the arm and hand at the time of the contraction. In reflex actions, ideo-motor actions, expression of emotions, associated actions in series, etc., the conscious notion which precedes the movement seems to be effaced and loses its importance. These cases deserve a special discussion into which I can not go. I shall confine myself to an action that is distinctly voluntary and very deliberate, in which one has the representation of the act before it is accomplished.

Such is the state of consciousness which precedes the movement. That which follows, or rather accompanies it as it is performed, is as important as the first, for it is that which co-ordinates the movement, directs it, and corrects it when the end is not properly attained. How can this control be accounted for?

Let us suppose, for example, that my open hand is placed on my knee; I wish to close it and do close it. How do I know that it is closed? At first we know it because we have consciousness of our act of will; but

some cause may hinder the movement, while the act of will remains the same. To be conscious of will is not, therefore, to be conscious of the movement itself; the essential thing in our perception of the movement as it is executed is the sight and sensibility of the member that performs it. These two classes of sensation are centripetal in nature; they are external facts transmitted to the brain by the sensitive nerves; they are, further, impressions which are consecutive to the movement performed; they follow the movement; they constitute a copy of it; they give to the subject the feeling of the energy which has been put forth.

The first and the most simple means of information is sight. When a person's eyes are open and fixed upon a member that is in action, he is informed by his visual perception of the position occupied by his limb and of the action performed. If he is writing, the sight of his pen tells him constantly and with perfect accuracy each letter as he traces it. Sight is not only the witness of the movement; it is also, and consequently, the regulator of it. By it the writing is followed and corrected. When the eyes are closed, difficult or unaccustomed movements become uncertain; and it is well known to what extent a person who begins to play on the piano requires visual control in order not to make false notes.

We have a second source of information, although a less valuable one, in the sense of hearing. It might be possible when the eyes are closed to make out what has been written by listening to the noise of the pen on the paper. But it is especially for recognising the quality of the sounds uttered by the voice that the ear is useful. The control that it exerts on the movements of the vocal organs is quite remarkable. It has often been

remarked that the tones of the deaf are harsh and by no means agreeable, because they do not hear themselves speak and can not regulate their vocal utterances.

In the third place, ideas of accomplished movements come to us from sensations connected with general sensibility. These sensations, though more obscure and less clearly defined than the preceding classes, are very numerous. As soon as a difficult movement is performed the mouth closes, the glottis contracts, and respiration is arrested or hastened. These muscular feelings contribute, according to Ferrier and W. James, to the production of the sense of effort. Moreover, other sensations occur, better localized, which arise directly from the limbs in action. When one moves his arm or leg, with his eyes closed, he feels that the limb moves; undoubtedly there is knowledge of the movement from the sole fact that there is consciousness of the will that commands it. But that is not all: there is a particular impression, of peripheral origin, which informs us of the contraction of our voluntary muscles. We feel the force, the duration, the velocity, the extent, and the direction of our movements; we know the position of our limbs and of the different parts of our body. Finally, we know the active and passive movements performed by our body considered as a whole. These impressions of movement (Bastian's kinæsthetic sensations), which play a considerable part in modern psychology, probably originate in contracted muscles, drawn ligaments, suppressed articulation, in the stretched or relaxed, wrinkled or rubbed skin. They are those impressions which, independently of sight, give us our idea of the resistance of foreign bodies, their weight, consistency, and shape. Only it is not yet definitely known what

elements in this entire group of sensations of movement belong respectively to muscles, skin, and the articular surfaces.*

II.

If now we consider a hysterical patient with an insensible member, one would think that this patient is suited to show us, by the method of difference, what functions are performed respectively by the sensibility of the skin, the muscle, and the joint. As a matter of fact, patients of this kind, as soon as they cease to see their insensible members, have no further consciousness of their position; they do not know whether they are flexed or extended, and they do not perceive the passive movements that the experimenter communicates to them. Briquet speaks of an hysterical patient insensible throughout her whole body to such an extent that after her eyes were blindfolded she could be lifted from her bed and stretched on the ground without having the least idea what was happening to her. She compared the sensation that she generally experiences to that which a person up in a balloon must experience. I have seen patients in the Salpétrière thus entirely anæsthesic upon whom it is easy to repeat experiments similar to that of Briquet's. Authors have therefore for a long time sought to profit by the ready-made experiment that hysteria affords. It seems important to know what the disorders of voluntary activity are which are produced in hysterical cases by the loss of kinæsthetic sensations. This mode of research presents no difficulty; the subject is asked to close his eyes, or, bet-

* On this question see the important work of Beaunis, Les Sensations internes (International Scientific Series).

ter still, his head is hidden behind a screen, and that being done, he is asked to perform certain simple or complicated actions with his insensible member.

When the experiment is arranged in this way what sort of experience does the subject have? In order to see what he lacks let us refer to the scheme of voluntary and normal activity as given above. An hysterical patient retains the faculty of willing the movement; in other words, what has been called, in a word, the *fiat* of the will. The muscles are not paralyzed and may contract. All this continues, but the two states of consciousness, the *model* and the *copy*, are seriously effected. In the first place, the perception of the movement which is being performed is suppressed. There can be no visual sensations, since a screen has been placed between the subject and the object in movement; no touch or kinæsthetic sensations, since the member is anæsthesic. In this way the subject ceases to be in communication with his member; he receives no further intelligence from it. So much for the *copy* state of consciousness. With regard to the *model*, this state which is so rich and complex in the case of a normal person is also considerably weakened, as we shall see.

As a matter of fact, the subject can no longer picture the movement to himself in motor form; he has lost both the kinæsthetic sensations and the corresponding ideas. This is, at all events, the rule; anæsthesia of a sense generally involves the loss of memory of this sense.* Failing a motor image to represent the action before it is performed, an hysterical patient may appeal to other ideas which supersede the motor ones to a cer-

* I believe there are exceptions to this rule; so we can only say that very often the anæsthesia of a sense carries amnesia with it.

tain extent. He may employ chiefly visual images if he has a good visual memory, which is not always the case. He will then make for himself, as well as he can, a visual representation of the movement to be accomplished. Auditory images are of very little use to him. A visual image is, upon the whole, about all that remains for him to depend upon.

Not absolutely all, however. I have mentioned simply the loss of kinæsthetic sensations. This is not a complete, absolute loss, for this loss only affects the chief personality. All that we can say is that the subject's *chief ego* has lost the perception of these sensations. But aside from and without this ego there is another consciousness capable of collecting and co-ordinating the sensations which are apparently lost; we have already cited several proofs of this fact.

Finally, some very simple experiments suffice to demonstrate the co-operation of the two personalities. There are many subjects who, without their own knowledge, correct a deviation that is imparted to their hand while it is performing a voluntary movement. In this way they are allowed to believe that the insensible hand is resting on the knee; it is gently removed from the body and placed in an unusual position. Then the subject, whose eyes are closed, is told to touch his forehead with his insensible hand, which is, he thinks, on his knee. There are patients whose hands become confused; others, on the contrary, correct the deviation without knowing it, and their insensible hand, whether it is raised or placed behind their back, always turns directly toward the face.

It is evident that every patient has his own way of reacting, resulting from the fact that the two personalities never co-operate in the same way. In some cases

the collaboration is quite rudimentary; in others it is, on the contrary, so perfect that no disturbance of sensibility seems to exist; between these two extremes all intermediate stages may be found.

In order to finish these preliminaries we may now give a summary of the facts of hysterical anæsthesia. To perform movements when she does not make use of sight, she has, first, her visual memory, which may be excellent, or passable, or very bad; second, kinæsthetic sensations and images which form a subconsciousness, and this subconsciousness may be more or less well co-ordinated. Sometimes it lends very efficient assistance to the head personality, and sometimes it is of no use whatever.

We may now see all the complications that the theory leads us to anticipate in the patient's performance of movements. There are some variations of less importance which we pass over in silence in order to simplify the matter as much as possible and go on to cite some observations.

III.

The movements of handwriting are among those which are the best preserved in cases of anæsthetic hysterical patients; moreover, they lend themselves fairly well to analysis, so we shall make them the object of our first study. I shall here sum up observations made with M. Féré on some thirty patients.

It is these experiments which brought me no recognise the division of consciousness with hysterical patients. I had had the idea *a priori* that if an hysterical patient wrote with his insensible hand, his eyes being closed, the absence of muscular sensations would be seriously felt and the writing would be entirely inco-

ordinate. But I was completely ignorant at that time of the nature of hysterical anæsthesia. I made the experiment and the result disproved my preconceived idea. I was then led with M. Féré to study the kinæsthetic sensations, and by degrees I ascertained with him the part played by visual images, together with the separateness of the different consciousnesses.

The majority of hysterical patients can write with their insensible hand when their eyes are shut; for these experiments it is better to take those whose right hand is insensible. The writing made with the eyes shut does not differ much from that written with the eyes open. An unprejudiced observer would not be able to tell them apart. The two specimens of handwriting are of the same size and seem to belong to the same graphic type. Sometimes the reduplication or the omission of a downward stroke or of a letter may be noticed, slight irregularities that may occur when a normal subject writes with his eyes shut. Sometimes, too, the handwriting made with one's eyes closed can be distinguished by its size. When the patient is insensible in his left hand and writes with it the handwriting may be reversed, from right to left; this is what is called "mirror-writing"; but usually patients write from left to right in the normal way.

It is important to determine precisely what the impressions are that an hysterical patient experiences when he writes with his insensible hand. That is a question, it is true, of a subjective state, and one can only learn about it by conjecture, by questioning the patients, and by endeavouring to understand explanations which are not always clear. Nevertheless I am convinced that the psychic state that directs the movements of handwriting in hysterical anæsthesic patients is not the same

as that of a normal writer. As a matter of fact, all those who have absolute insensibility in the arm and hand agree in saying that *they do not know that they are writing;* in other words, they are not conscious of the voluntary movement performed by the hand. And therefore the movements for handwriting performed by the anæsthesic hand are at once voluntary * and unconscious. When the subject uses his sensible hand, on the contrary, he has an idea of the graphic movement that he performs, and he knows the difference of the two cases very well.

Further, with the majority of patients, the unconscious handwriting of the insensible hand is guided by a state of visual consciousness. The subjects, when closely questioned, almost all declare that *they see themselves writing*—this means that they picture to themselves in the mind an image of the hand that writes or of the letter that is written; it is this model that the graphic movement unconsciously copies. Of course, this fact is not invariable, but it is quite usual, and means that the patient belongs to the visual type.† I had the opportunity of studying a very interesting patient in this respect, who had so little visual memory she could not remember the colour of the eyes of her best friends unless some one alluded to the colour before her (in that case the verbal memory came to her aid). When this patient's eyes are shut and she writes with her sensible hand, she appeals to her motor memory. She

* [Of course, the question remains whether movements of which neither the so-called *model* nor the so-called *copy* (of the discussion above) is conscious can be called voluntary—but see the next paragraph.—Ed.]

† On the existence of the visual type see my Psychologie du raisonnement, chapter i.

clearly understands that when her eyes are closed she does not copy from a visual model in her mind; she represents to herself the movement that she ought to perform. If she is asked to write with her insensible hand she can just trace some unformed letters—that probably indicates that under these conditions motor memory fails her; in fact, she can not picture to herself in muscular terms the movements of an insensible hand. The motor sensation having vanished from her consciousness, the motor image goes also; and, moreover, as the patient has scarcely any visual memory, there is no image of any kind at her disposal to guide her hand.

Other patients, who have a better visual memory, are obliged to resort to stratagem in order to write with the insensible hand when their eyes are shut. They are careful not to close their eyes at once—they wish to look at the hand and to see when it holds the pen and when it is in position on the paper, in order to be able to represent it to themselves afterward with more distinctness and intensity. This minor detail of experiment, which is rarely lacking, may serve to verify the testimony of the subjects.

Since the hysterical patient under the peculiar conditions in which he is placed does not feel his hand write, one might suppose that he could neither tell exactly at what time he began to write, when he finished, or what letter he was tracing at a given time. But close observation shows that from this point of view subjects do not all behave alike; two categories, at least, should be distinguished.

The first, a very numerous class, do not know at all what the hand is doing. If they happen, when their eyes are closed, to tell a word correctly which they have just finished writing, it is because they calculate,

as they themselves remark, the time which has elapsed since the beginning of the action. They perceive nothing, but they form a conjecture. One can easily throw them on the wrong track if the experiment is in the least complicated. For example, by asking them to write the same letter a certain number of times; in spite of all their efforts they can not count exactly; if they have twelve letters to write they almost always write a few more or less. When they are told of it they are astonished, for they claim to have seen themselves writing the number of times they were directed to. A second class of subjects whose movements for handwriting are equally unconscious, are nevertheless able to write with closed eyes the exact number of letters they have been told to, and so approach much more nearly than those just mentioned to the psychological state of a normal writer. Yet with care, differences may still be found; thus if the insensible hand is abruptly stopped and the patient is asked to tell exactly what letter he has just written, he very often makes mistakes.

IV.

In a general way, the graphic movements are well maintained and correctly performed. But this is not the case with other movements. We shall examine certain other movements and make some observations upon them.

We should, by rights, review a series of patients and make observations on each of them, for each manifests a great number of phenomena peculiar to himself. But I can not undertake so great a task. We are obliged to combine all the patients and also to confuse them a little under a general description. This expedi-

tious process has its disadvantages; for our description, while true in the main, does not apply to any patient in particular, and will not be quite true of any one person.

Authors who have written on hysterical anæsthesia have often reached contradictory conclusions, as a result of the fact that in the case of an anæsthetic hysterical patient one may find anything from complete paralysis of movement to entire soundness. The mistake has been made of only taking into consideration one or other of these phenomena and drawing particular conclusions from them, which are usually found to be false. We must try to furnish explanations capable of being adapted to facts which are apparently contradictory. The facts are as follows:

The majority of hysterical subjects come to use their insensible member with almost as much accuracy and steadiness with their eyes shut as if their eyes were open. "Certain subjects," says M. Charcot,* "hysterical for the most part, deprived of all the forms of sensibility in a member, have nevertheless retained to a great extent the power of moving this member freely with their eyes closed. Our patient Pin. presents to-day a fine example of this. In his case, as we have seen, cutaneous sensibility and profound sensibility are completely destroyed over the whole extent of the left arm, and when his eyes are closed he has absolutely no idea of the passive movements communicated to the different joints of this limb, nor of the position that they assume. When his eyes are open the voluntary movements of the member, general and partial, show all the characteristics of a normal state both

* Leçons sur les maladies du système nerveux, iii, Appendix.

in variety and in precision. These movements persist in great measure when the eyes are closed, only they are more uncertain, hesitating, although not entirely incoordinated; they are performed indeed, as it were, gropingly. Pin. can still with his eyes shut guide his finger with a certain precision toward his nose, his mouth, his ear, or even toward an object placed at a distance, and succeeds in attaining his end." More recently, in May, 1887, M. Babinski dwelt on these same facts in a paper before the Society for Physiological Psychology. I myself, in a work in collaboration with M. Féré, reached the same conclusion independently. We ascertained that if hysterical subjects were studied, whose loss of consciousness of passive movements occurs so often and coincides usually with insensibility of the skin, one easily discovers on the first inspection, so to speak, that even when the subject does not see his limb the voluntary movements of this member almost always survive the loss of consciousness of passive movements. It is in this way that the subject is able without the aid of sight to give a general direction to the voluntary movements of his insensible arm, bend each finger as mentioned separately, bring in front of him the insensible arm placed behind his back, put his tongue in and out, stand, hold an object between his fingers, write, press a dynamometer, and sometimes even graduate the effort of pressure.

Facts of this kind have long been known, but they have had inexact interpretations. Some authors said: "Hysterical patients rarely lose the muscular sense, for when all other tactual sensibility, both of touch and feeling, is gone, they retain the ability to sew, to knit, and to write—movements which require very perfect and very complex sensations."

We now understand the confusion into which these authors fell. Starting from the fact that co-ordinated movements are possible for insensible members, they concluded from this that the muscular sense is retained. Now, nothing could be more incorrect. The truth is that voluntary movements may survive the loss of consciousness of passive movements, that is to say, the loss of what is called the muscular sense; only the loss is not absolute; it only affects the chief personality, and by its side another thought, another consciousness, combines the sensations arising from the insensible members and co-ordinates the movements.

Other authors have given a different interpretation, but no truer than the first. I may enlarge a little on this subject, for the question which is here at stake is very important, i. e., it is the question of the muscular sense, its nature and seat.

I pointed out above the states of consciousness which place us in relation with our motor activity. It has been thought by some that a subject who accomplishes a voluntary movement is made aware of the performance of this movement by impressions of another order, impressions which, instead of being centripetal, are *central*; they would correspond to outgoing nervous discharges; the subject would have the feeling of innervation, of motor discharge, just at the time when the discharge took place into the motor cells of the cerebro-spinal axis, and consequently before the appropriate muscular contractions were produced. This hypothesis is not of recent origin; on the contrary, it is very old. Developed by J. Müller, the well-known physiologist, it has been revived lately by Bain, Hughlings-Jackson, Wundt, Bernheim, etc.

Recently certain authors engaged in the study of

hysteria have thought that they found an argument in favour of the position just mentioned, known as the "central discharge" theory. These authors thought that if hysterical patients were able to co-ordinate movements of their insensible members when their eyes were shut, it was a proof that subjects of this kind possessed a feeling of motor innervation guiding their voluntary movements. In fact, say they, these patients have lost the aid of motor sensations, since the member which they use is insensible. They are, moreover, deprived temporarily of the sense of sight, as their eyes are shut. Therefore, since under their conditions they are capable still of directing their voluntary activity, of bringing the hand to a given spot on the face, for example, there must be a state of consciousness constantly informing them as to the nature of their movements, and indicating to them at each instant the position of the limb. This state of consciousness must necessarily be the feeling of discharge, the feeling of motor innervation.

This interpretation, as I understand it, must be rejected, because it is based upon inexact observation. It is not true that anæsthesic patients lose the benefit of kinæsthetic sensations. These sensations belong to a second consciousness, which may co-operate with the normal consciousness.

In summing up we may say, therefore, that all these phenomena can be accounted for by, first, the use of good visual memory; and, second, the survival of sensations and motor images in a separate consciousness.

We have singled out two classes of subjects, and described the first. The second is made up of persons who, when they no longer see their anæsthesic mem-

bers, become incapable of guiding or even moving them.

This incoordination, or, to be more exact, the motor impotence which with some hysterical patients survives after the eyes are shut, has been studied by Duchenne de Boulogne, under the phrase "loss of muscular consciousness." This designation is wrong in that it assumes an explanation of the phenomena, an explanation which indeed is incorrect, and consequently should be rejected. If the explanation is difficult, still the observations are very clear. It concerns hysterical patients who are incapable, when the light is extinguished, of rising from the chair or of stretching out the hand. At night these patients remain immovable in their beds, without being able to change their positions. If overtaken by twilight in the country they can no longer walk. When they walk in daylight they advance with their head hung down gazing on their feet. If their attention is distracted and they cease watching the hand, they drop the objects they hold; and an example has been cited of a mother who, under these conditions, was just about to drop her child whom she was on the point of nursing. I have seen some who waver and fall as soon as their eyes are closed. When the anæsthesic hands of these patients are placed behind their backs they can not draw them forward again, and some one else is obliged to render them this service. One might fill pages by citation of examples which have been reported. I myself have observed a large number and they leave no doubt whatever in my mind.*

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* Recherches exp. sur la phys. des movements, by Binet and Féré, Arch. de Phys., Oct., 1887.

In order to explain the motor impotence following thus upon the closing of the eyes, it would be necessary to make a detailed study of each patient. I attach very little weight to general statements. Each patient, as I have often said, should be considered separately, for what is true of one is often false of another. Being unable to make so minute a study here, I shall confine myself to certain indications.

We have seen by detailed analysis of motor activity what assistance is necessary from states of consciousness, perceptions, representations, etc., for the accomplishment of a movement when the eyes are shut. The impairing of any one of these states reacts on the movement. Let us first consider the represented state prior to the action. This representation is generally of a visual nature in the case of a hysterical patient. If the visual memory of the subject is bad, if he can not clearly see in his mind the position of his hand and the movement to be performed, he does not know exactly what the movement is which is expected of his member, and consequently there will be motor impotence more or less complete. The same result will follow if the subject has been hindered in looking at his hand before his eyes were closed, or rather if he does not know the actual position of his hand. His ignorance prevents him from representing his hand visually, and therefore he can no longer guide it.*

There are cases, however, where the movement of the anæsthesic limb does not require to be guided by a conscious visual image, and may be correctly produced, although the subject be incapable of representing it to

* The importance of visual images in these experiences has been put in evidence by M. Pierre Janet in several passages of the book already referred to.

himself. M. Pitres has given us a most interesting example. Both hands are made to rotate. This movement may continue after the eyes are closed, because one of the hands is not anæsthesic, and because it associates the other with its movement, and so carries it along.

A hysterical patient, moreover, manages to dispense with a visual image by replacing it with a tactile image of the same kind, which plays the same part—that is to say, this image apprises the subject of the position of his hand. Thus Lasègue saw, and Pitres after him, that when the subject's eyes are closed, and he can not voluntarily move the fingers of his anæsthetic hand, this movement is made possible by placing the subject's hand on his head, the skin of which is sensible. The contact then rouses conscious tactile sensations that apprise the subject of the position of his hand, and from that moment the hand is able to move.

The cause of motor inability may be found also in the absence of kinæsthetic sensations. It is true that these sensations are not lost; they are present in the lower consciousness. But the secondary consciousnesses are often badly organized; they do not know how to co-operate with the principal consciousness, and the psychological elements which compose them remain disaggregated, and so give no assistance. I have already cited more than one fact which proves the importance of co-ordination in setting the subconscious phenomena to work.

A third particular should be added, with some reserve, to the two details that we have just mentioned, as sufficing to explain in a great number of cases the muscular weakness of hysterical patients when their eyes are shut, i. e., light seems to be a necessary physio-

logical stimulus to these patients whose nervous systems are impaired. If their eyes are closed or they are put in the dark a great number of their physiological functions slacken; their dynamometric force diminishes even on the sensitive side of the body. The movements of the sensible limbs become less accurate and less rapid, their memory and thought more sluggish. It is undoubtedly the suppression of light that produces these results, as M. Féré has shown in a series of experiments. Strumpel's experiment leads him to the same conclusion.*

V.

But we have not yet finished the study of voluntary movements performed by anæsthetic limbs. These movements present many objective characteristics which depend upon the anæsthesia, and may be summed up as follows:

1. A diminution in the power of dynamometric pressure.

2. A lengthening of the physiological time of reaction.

3. A particular form of voluntary contraction.

4. An increase in duration of the state of contraction, produced by the absence of fatigue and effort.

The simple enumeration of these different points would undoubtedly lead one to suppose that it is a question of purely physiological phenomena, which are only of indifferent interest for the psychologist; but that is an error. Psychology is not to derive profit only from experiments that may be reported verbally;

* This question I can only suggest. For details see Féré, Sensation et movement, and articles by Raymond (Rev. de Médecine, 1891) and Pick (Neurol. Centralb., 1891, No. 15).

there are purely material phenomena, such as a muscular contraction, which may give us information about a mental phenomenon—and that is precisely the case here.

When an hysterical patient performs a voluntary movement with his insensible hand, it is subconsciousness, we have seen, which receives the order and takes upon itself to perform it. Now, if the manner in which this order is performed be closely studied, if the muscular contraction be recorded with exact apparatus, certain of the characteristics of this contraction which demonstrate the existence of a subconsciousness will be found in the tracing. This is a most interesting question, and one which deserves further consideration.

1. *Power of Dynamometric Pressure.*—A subject's voluntary power is measured in the medical clinic by means of a dynamometer, which indicates the strength of contraction of the flexor muscles of the fingers.

Since the researches of Briquet and Burcq, the inventor of metallotherapy, we know that the power of pressure is less on the anæsthesic side than on the healthy side. This difference, without being constant, is nevertheless so general that it may serve as an objective sign of anæsthesia. Since beginning the psychological study of hysterical patients I have always noticed the relative strength in the right and left hands, and have not found more than two or three exceptions to Burcq's rule. Pitres has also mentioned some exceptions.* The difference in strength between the two sides varies greatly with the subjects; sometimes it is almost insignificant—a few kilogrammes more or less. For example, the anæsthetic hand will give a pressure

* *Op. cit.*, p. 33.

of twenty-five kilogrammes and the sensible hand a pressure of twenty-eight kilogrammes. If the left side is anæsthetic a difference of two or three kilogrammes does not indicate weakness, for it is normal with right-handed people. In the other case the difference, more marked, may rise to ten or even twenty kilogrammes and upward. The reason of these differences is not known, and no one has succeeded in finding any well-defined cause for them—such as a relation to the degree of anæsthesia.

As if for compensation, hysterical anæsthesia often produces increased strength in limbs which have retained their sensibility. This increase of power may be discovered by modifying the sensibility by means of suggestion, and experimenting upon the strength before and after (Binet).

If anæsthesia is complicated with paralysis the corresponding limb which is neither insensible nor paralyzed shows increased strength (Binet and Féré). This is a characteristic of especial importance, because in paralysis from organic causes (Pitres, Friedlander) the nonparalyzed side shows motor weakness.

The decrease of the amount of pressure in an insensible limb depends upon this insensibility, and consequently to a certain extent upon the division of consciousness. The proof of this is that in imparting insensibility by suggestion to a healthy limb its power of pressure is diminished. What is the explanation of this result? We may suppose that the power of contraction—which depends as much on the will as on the muscle—is connected with the degree of development of the ego who directs the movement. If the ego consists in some elementary psychological phenomena, there will not be as important emotional states involved

as if it were a question of a complete ego, a veritable personality. Thus it is easy to understand that the subconscious person has less strength than the chief person. It is easy to verify this hypothesis by taking the dynamometric power of the same person in different stages of development. Be it as it may with this hypothesis, which we may label by the word suggestion, there are cases where the power of pressure certainly depends directly upon psychological causes, as when the subject is obliged to press simultaneously with both hands. Then the amount of pressure decreases often very considerably. This diminution evidently results from lack of attention; the subject is forced to think simultaneously of and will two voluntary movements at once. He is obliged to divide his attention between the two actions, and it is for this reason that his pressure is weak. This is, it seems to me, a good demonstration of the ideas of M. Pierre Janet on the contraction of the field of consciousness common to hysterical patients. I have already spoken of this contraction in connection with distraction, and now give, perhaps for the first time, a material proof of its reality.

2. *Physiological Time of Reaction.*—Anæsthesia produces a prolongation of the physiological time of reaction for voluntary movements.

Duchenne de Boulogne has put the fact in evidence by a very clear and simple experiment—a true clinical experiment. A hemianæsthetic subject is told to put his hands close together and open and shut them simultaneously. The subject's eyes should be shut. Usually one hand is slower than the other—always the anæsthetic hand. But the results vary somewhat according to the subject and according to the conditions under which he is placed.

Generally when the eyes are open the movements of the two hands are almost simultaneous; that is on account of the fact that the subject directs his attention and gaze by preference to the anæsthetic hand, so that he hastens its movement to some degree. But if his eyes are closed the simultaneousness of the movements is seriously interfered with. Almost always in the case of the patients whom we have observed the delay of the anæsthesic hand becomes very perceptible on careful inspection. Sometimes it performs the same number of movements as those of the sensible hand, but with constant delay. Sometimes the number of its movements diminishes, and it only closes, for example, five times while the sensible hand shuts from twelve to fifteen times. These movements of the anæsthetic hand are often incomplete; the closing of the fist is scarcely more than hinted at, and the nails are not hidden in the palm of the hand. This phenomena may be exaggerated to the extent that the anæsthetic hand remains immovable, although the subject, whose eyes are shut, is convinced that he opens and shuts it alternately. One might say in this case that the delay is infinite.

This general description does not hold for all patients, and I shall cite some in detail to see what a series of variations may be shown by a phenomenon which is, upon the whole, so simple. Léonie L——'s right side is anæsthetic, and her left side is hyperanæsthetic. The reaction time is longer for the right than for the left side when her eyes are open; the difference increases when her eyes are shut. Dem. is anæsthetic on the right side only. When the subject closes both hands while looking at them—and in this case he takes pains to bring them together—the movement is simultaneous; measurements accurately taken

with registering apparatus leave no doubt on this point. If Dem. shuts his eyes the insensible right hand closes in the same time as the other, provided that Dem. thinks only and hard of his right hand; as soon as his attention tires the right hand ceases all movement. The result is that when Dem. is asked to press two india-rubber tubes connected with a registering apparatus, there are at first five or six simultaneous movements of both hands, and then only movements from the sensible hand. It is necessary to question the subject, show him that he has not used his anæsthetic hand, and earnestly entreat his attention in order to obtain fresh movements from both hands. Finally, I may cite Saint-A——, whose right side is anæsthetic; in her case, whether her eyes be open or shut, the contractions of both hands are simultaneous.

The following table gives some figures of time reactions with P. S——, whose right side was anæsthetic; the reactions were made to a sound stimulus (the low beat of a metronome):

	Sensible side.	Insensible side.
Mean time	0·16 sec.	0·35 sec.
Maximum time	0·18 "	0·50 "
Minimum time	0·11 "	0·28 "
Mean variation	0·018 "	0·073 "

These figures show that the reaction time of the sensible side is not only shorter, but also more regular, for the mean variation is less. The maximum time of the sensible side is even lower than the minimum time of the anæsthetic side.

M. Féré has made similar experiments which have confirmed this result. He has observed further that

when the sensation which answers as a signal is perceived with difficulty—which results, often, when the signal is given by touching a region that has low sensibility—the reaction time is again lengthened.

I said above, when studying the hand pressure, that when both hands grasp simultaneously the amount of pressure falls on both sides at once—this is, at least, the case with some hysterical subjects. The truth of this appears in that it may be confirmed by reaction times. The times lengthen when both hands—sensible and anæsthetic alike—respond at the same time to the signal. The next table gives some figures taken from P. S—— when he was in this latter condition; in other respects the experiment does not differ from the preceding:

	Sensible side.	Insensible side.
Mean time	0·277 sec.	0·709 sec.
Maximum time	0·29 "	0·88 "
Minimum time	0·18 "	0·45 "
Mean variation	0·027 "	0·078 "

The comparison of these figures with those which we have given above shows that the prolongation of the time of reaction with the combined action of both hands is felt on both sides, but that it is very much greater on the anæsthetic side.

It was with this same subject (P. S——), I may say in passing, that we discovered the supplementary reaction, of which I have spoken,* during the reaction of the anæsthetic side. This reaction differs from the ordinary reaction of the insensible side, first, by psychical characteristics, which we have already mentioned, and next and especially by the time when it occurs.

* Above, chapter iii.

The ordinary reaction (in a bilateral response) occurs after a mean time of 0·709, the additional reaction after a mean time of 0·23.

Finally, the delay of the reaction time, as well as the diminution of the amount of pressure, may be set down to a certain extent to the score of mental disintegration. These are signs in which one may recognise a lower form of consciousness. They may, from this point of view, be compared to the phenomena of imitation that one so often meets with in rudimentary consciousnesses.

3. *Form of the Voluntary Contraction.*—A few words may suffice on this head. If the curve of contraction of the sensible side be compared with that of the anæsthetic side it will be found that the ascent is generally shorter and straighter than in the curve of the voluntary contraction of the sensible side. The difference is extremely clear with some patients, when the two contractions are made simultaneously.

4. *Duration of the State of Contraction.*—The differences mentioned up to the present point between the voluntary movements of the sensible and anæsthetic sides are by no means as important as those which still remain for us to examine. We may now inquire into the duration of the state of contraction, or of the muscular tension, investigating how long the subject is able to remain in the state of muscular contraction.

It may seem that this is a purely muscular phenomenon, but it would be a mistake to believe this. We have already seen what an influence attention may exercise upon reaction time. When a patient, Dem., for example, thinks of his insensible hand, it responds to the stimulus, whereas when he ceases to think of it the hand remains immovable. We have also seen that

when an hysterical subject is obliged to press the dynamometer with both hands at the same time, the amount of pressure is less than that given by each hand pressing separately. This results probably, as we saw, from the fact that in the first case the subject is obliged to divide his attention, instead of concentrating it upon a single hand. The study of voluntary movements is therefore, from more than one standpoint, psychological study, and constitutes an analysis of the act of will as much as an analysis of the motor phenomenon. This is what the following observations have still to show.

It is useful in this kind of experiments to commence by submitting oneself to the tests that the subjects are obliged to undergo; in this way one is able to understand the mental conditions under which an hysterical patient finds himself placed. If one attempts to measure the time during which one is able to maintain a fatiguing position, or to press on the dynamometer, he finds at once that the time is largely at the option of the subject. As a matter of fact, taking myself as an example, I notice that when I press the dynamograph very complex phenomena takes place in my mind, to which I am accustomed to pay no attention. If any one questions me as to what it is that I experience, I should perhaps say that after a while I have such a feeling of fatigue that I am obliged to let go of the instrument. This is not absolutely exact; the end of the muscular contraction was not directly produced by fatigue. When the fatigue occurred I reflected upon this unpleasant sensation that I was experiencing, and asked myself whether it was of sufficient intensity to justify me in stopping my effort. I deliberated on this point, thought of the length of the dynamographic curve, proposed to myself to endure it until another

half revolution of the cylinder had been made, etc. After having deliberated I reached a decision. I resolved to loosen my fingers. It is therefore my will which finally settled the limit of the state of contraction. The fatigue and the other trifling enough motives which I have just mentioned were only indirect causes; the direct cause which brought about the end of the voluntary contraction was the subject's will.

I have no doubt that analogous states of consciousness occur with hysterical patients. I suspect, consequently, that if such a subject, considered as typical of the class, sustained an effort of contraction only for a very short time, this result might be as much from weakness of will, from caprice, from a feeling of *ennui* or bad humour, in fact, from any trivial circumstance, as from a real feebleness of motor power; and a long effort might be attributed to an exceptionally good will produced by vanity, coquetry, etc.; and consequently the length of the state of contraction would have no absolute value.

This only applies, of course, as long as an hysterical patient finds himself placed under conditions to which a normal patient would be subject, that is to say, using a sensible limb and having sensations of fatigue and of effort. It is the movements of the sensible limb which are especially subjected to the psychological influences of which I have just spoken.

When the hysterical subject uses his insensible limb the mental conditions of the experiment are entirely different. The conscious will (that is to say, the will of the chief personality) only interferes for a single moment during the experiment—at the beginning. If the subject be asked to press a dynamometer and continue the pressure, his will orders the contraction and

sets it to work. Then the hand continues to press without his being conscious of it and without the slightest necessity for his being engrossed by it. In the same way when he is asked to retain an attitude, to keep his arm extended horizontally, if the arm is anæsthetic, the subject need only take the required position. Then he no longer has any sensation arising from his arm, and need not pay any attention to it, and the arm remains stretched out as if it were forgotten. We see, therefore, that the two mental situations are not comparable.

The first fact to be noticed is that the insensible member generally remains longer in a state of contraction than the sensible member; the power of contraction is less considerable, but in return the duration is greater. If the dynamographic curve of the sensible and the anæsthetic sides be taken and compared, this difference of length will be found, and at the same time the curve of the anæsthetic side is smoother and more regular; there is no trembling whatever. This may be seen in Fig. 2, which shows two dynamographic curves taken on P. S——,who is anæsthetic on the right side. The curve of contraction of the left (sensible) side is the higher of the two. It is short and tremulous. The curve of contraction of the right (anæsthetic) side was taken immediately after and with the same apparatus. It is about two and a half times longer, and is smoother and more regular.

On the other hand, the maximum amount of pressure is less than in the former case, and the curve is not as high above the abscissa line. One might then suppose that this is a kind of compensation, and that if the subject tried to maintain a light pressure with his sensible hand he would reproduce the curve of con-

traction of his anæsthetic hand; yet I am convinced that that would be a mistake.

The true reason that the curve of contraction given

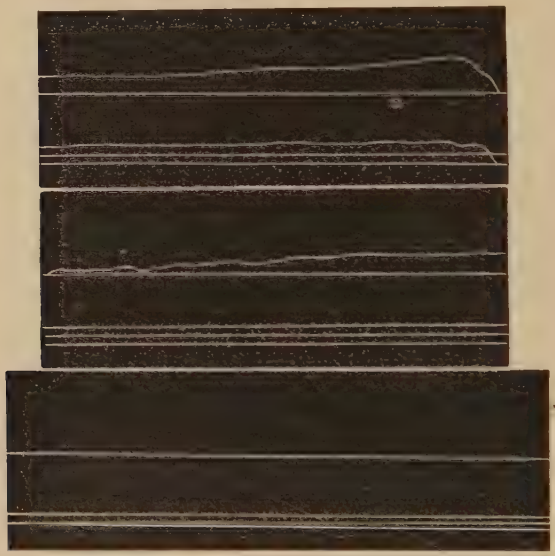

FIG. 2.—DYNAMOGRAPHIC CURVE OF A HYSTERICAL SUBJECT: The three figures are portions of the same tracing, which reads from right to left. In each figure the upper curve is from the sensible hand, and the lower from the anæsthetic hand. The first of these curves is short; we see it only on the first and second portions of the tracing. It has disappeared on the third, where only the abscissa line remains. Further, it is rather trembling and irregular, and in its first phase pretty well elevated. The curve of the anæsthetic hand is longer. After a gradual ascent it continues almost parallel to the abscissa line, and follows it through the three portions of the tracing before uniting with it. (Reduced to one third.)

by the anæsthetic hand is longer is psychological. The length of the curve results from the absence of the sensation of fatigue. It is the sensation of fatigue which

commonly, in a subject of sound will, sets a limit to long continued effort from its depressing character. Fatigue occurs long before muscular exhaustion and preserves us from it. In a limited secondary consciousness the sensation of fatigue is not produced, or, at least, if it is produced, it is not as clear, as intense, as well co-ordinated with the movements of the arm as in the larger and richer consciousness; it neither warns the subject, nor causes the state of contraction to cease. The prolongation of this state is then, like all the other characteristics that we have mentioned, the sign of an inferior form of consciousness.

The result of the preceding facts is that we find in the germ in the contractions of the insensible hand the spontaneous or induced characteristics of hysterical contractions. These characteristics are, first, a state of semicontraction, for when a limb is contracted the contraction may still be increased by faradization (Richer), and, further, the muscular sensation of the contracted muscle is weaker than that of the muscle in a state of voluntary contraction (Boudet de Paris, and Brissaud); second, when traction is used on a contracted limb it yields to the pull, but much more slowly than a limb made rigid by the will. It yields, moreover, without fatigue or modification of the respiratory rhythm (Charcot and Richet).

The motor work of an insensible limb may be studied also under another form—namely, through its conservation of an attitude. The subject can keep a fatiguing position (with his insensible arm) a very long time—generally a much longer time than is possible with the sensible arm. He can place himself, as it were, voluntarily in a state of partial catalepsy.

All these facts show us that phenomena of catalepsy

and contraction are, to a certain extent, the expression of divisions of consciousness; they indicate the rousing of fragmentary consciousnesses, which contain little more than motor images and which are too contracted to experience the phenomenon of fatigue.

CHAPTER VII.

AUTOMATIC HANDWRITING OF HYSTERICAL PATIENTS.

I.

The co-operation of several consciousnesses, in the case of an hysterical patient, is shown in quite a remarkable way in what is called "automatic handwriting." The interest of this phenomenon is still further increased by the frequency with which it occurs with spiritists, and even with normal subjects; but nowhere else, I believe, is its mechanism so easy to study and demonstrate as in the cases of hysterical subjects. The question, therefore, deserves full treatment in a separate chapter.

I have already spoken of automatic handwriting, particularly in Chapter IV, where I endeavoured to show the existence of a subconscious person during the waking state. Let us briefly recall the facts. We saw that if the anæsthetic hand be guided in order to make it write a word, the hand repeats this word; that is the first case of automatic handwriting. We saw also that in a division of consciousness produced by distraction, the unconscious personality may respond, by writing, to questions put to it in a low voice; that is a second case of automatic handwriting, and here the writing is more developed, for it does not stop with reproducing the question—it also replies to it.

In both the circumstances which we now recall the movement of writing served as a medium of expression for the unconscious personality; and, further, it described perceptions and ideas which belonged to this personality, and which the principal consciousness did not know. The separation of consciousnesses is complete and absolute.

In my own researches, where I studied the relations of distinct consciousnesses, automatic handwriting played a very different part; it served as a connecting link between the two consciousnesses. The idea of expression belongs to one of the consciousnesses, and the graphic movement which conveys this idea belongs to the other. They are in a sort of collaboration.*

The way in which experiments show this co-operation is this: An hysterical patient is asked to think for some time of an object or word; nothing more is said to him; he is not told to write anything, for if this order were given to him a voluntary action of the kind which we have studied in the preceding chapter would be induced. At present it is not a movement that we wish to study, but an idea. To attain this end it is well to choose, among the ideas that are suggested, one that does not contain an evident motor reference. If, for example, the hysterical patient is asked to think of the person with whom she has just been talking about the letter that she has received, or of some other such memory, it is clear that an idea of an action to be performed is not suggested to her mind, but an ideation state simply.

* [It may well occur to the reader to ask whether the evidence of this collaboration does not to a degree counteract the evidence that the two consciousnesses are really distinct enough to be called separate personalities.—Ed.]

Allow her to be absorbed for a moment in her idea, then slip a pencil into the insensible hand, which is hidden from her by a screen. Very soon the hand moves, grasps the pencil, and begins to write, and what is written is the word of which she was thinking. When the subject pictures to herself, not a sign, but a complete object like a head or a human figure, we sometimes find that the anæsthetic hand tries to draw an outline of the objects, thus revealing to the experimenter the inmost depth of the subject's thought.

This experiment, difficult as it may seem, is yet very easy. It succeeds in a great many cases where scarcely any other phenomenon of mental division exists. The graphic translation of a state of mind by the secondary personality ought then to be considered in these hysterical patients as a subconscious action of an elementary nature. In this way, as I have said before, the phenomena of automatic handwriting can be demonstrated with people who are not hysterical; it is the exaggeration of the phenomenon that is peculiar to hysteria. The movement is so clear and so gross, so to speak, that in order to see it it is only necessary to watch the insensible hand.

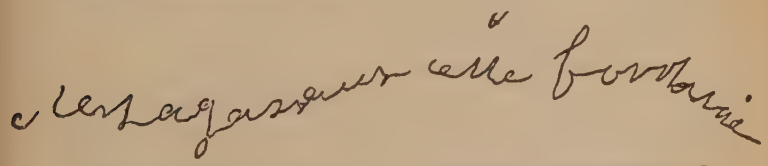

FIG. 3.—AUTOMATIC WRITING OF A HYSTERIC. She wrote: "It plagues me, that fountain" (C'est agaçant, cette fontaine).

Fig. 3 is of interest only as showing with what facility the automatic handwriting manifests itself. An hysterical patient was seated in the laboratory near a

table; some water dropped noisily from an open faucet a few yards from her. A pencil was slipped in her anæsthetic right hand without her knowledge, and the handwriting betrayed the irritation that the noise of the water caused her to feel.

In this way automatic handwriting may express either the thoughts that are suggested to an hysterical patient or his own voluntary thoughts. If his hand holds a pen or pencil, it immediately records the state of the dominant consciousness. It is not even necessary for the idea to be a habitual one, for when the subject reads aloud, that may be sufficient to start the pen writing. Naturally the pen does not keep pace with the reading; moreover, the automatic handwriting generally only traces some words of the text that is read—here an entire word, there a single letter or a figure. When the complete word is written it no longer keeps up with the reading, if that still continues; the subject is sometimes two or three lines further on when his hand finishes writing the word. It follows, therefore, that there are two different simultaneous thoughts. I have remarked that often subjects write with less facility when automatic handwriting is induced without their knowledge; they hesitate, stop, seem disturbed or irritated, without being able to account for it.

Automatic movements manifest themselves, to a certain extent, in proportion to the intensity of the thoughts. As soon as the patient makes an intellectual effort to remember or reason, or to guess anything, the insensible hand holding the pencil takes the necessary position for writing; as soon as the problem is solved or given up, the hand drops the pen and settles itself in an attitude of repose.

II.

In all of the preceding cases a subconscious movement is induced by a conscious mental representation. We may determine, with the help of an example, the extent to which the phenomenon is conscious. The subject is asked how old he is. Just when he is going to reply, or even some seconds before he answers, the pen, which has been carefully slipped between his anæsthetic thumb and first finger, makes the same written response. The subject has a conscious representation of his age; he is not conscious of what he has written. The first half of the psychomotor process is conscious, therefore, and the second subconscious.

If we were to confine our attention to the preceding cases we might believe that automatic handwriting consists of simple reflex movements produced by ideas. It is easy to show the inadequacy of this interpretation, however. In reality there are in all these experiments two thoughts which fuse and supplement each other. Thus the insensible member does not begin to write, usually, until a pen has been put between the fingers. If the hand does not take the necessary attitude for writing it remains immovable, or at least its movements are vague, undecided, and easy to distinguish from the true graphic movements. With some subjects, it is true, the insensible hand writes without the proper attitude for writing having been given to it. For lack of a pen it writes with the end of the first finger, which requires a totally different movement. Thus the position imparted to the limb changes the form of the response. We have already seen a similar fact in subconscious movements in response to a sensation equally

subconscious.* This influence of position is the first complication of the phenomenon.

Other instances also show it—for example, an ingenious experiment of M. Babinski, which he has kindly reported to me.† The subject, when in his waking state, is asked to think of a number; then some one takes his insensible hand and, unknown to the subject —as, for example, acting behind his back—bends his finger for him a certain number of times; when the number is reached of which the subject is thinking, the finger becomes rigid, and in this way indicates the correct number. It is unnecessary to say that this result can not be explained by simple reflex movement. In order to stop at the proper moment the subject must have an intelligence that allows the finger to bend, counts the number of flexions, then when the number is equal to the number thought, stiffens the finger with the evident intention of stopping the experimenter in his numeration.

M. Onanoff has endeavoured to measure the reaction time of such unconscious movements produced by conscious ideas, arranging the experiment in this way: The subject was asked to think of a number. Let us suppose that he thought of the number two. The member is touched a first time and the moment of contact is recorded on a registering cylinder. The subject's finger does not stir. It is touched a second time, and this time the finger moves. The contact of the experimenter and the subject's movement are recorded on the same cylinder, and the distance between two marks

* See p. 125.

† M. Babinski has reached independently by different methods several of the observations described above. The same is also true of M. Onanoff (Arch. de Neurologie, 1890).

gives the length of time of the subconscious reaction. The reading of the tracings has shown that the time of the subconscious reaction is less than the same subject's reaction time when performing a voluntary movement with his nonanæsthetic member. As a matter of fact, the time is from 0·07 to 0·11 with subjects having for voluntary movements a reaction time of from 0·127 to 0·196. This experiment furnishes a good objective control against simulation; it agrees, moreover, with that that we have already reported above in connection with the subconscious reaction which accompanies a voluntary movement of an anæsthetic limb.

As an appendix to the preceding series of experiments, we may note a slightly different fact which proves the great complexity of forms which the cooperation of the two consciousnesses exhibits. In the automatic handwriting which we have described one of the consciousnesses pictures the idea and the other expresses it. It is possible that the principal consciousness, instead of inducing the processes of an action in the domain of the other consciousness, only induces a tendency—a particular orientation of ideas. The circumstances under which this sort of psychical induction is produced are very interesting, I think, for they are found also in a great many other cases than hysteria. The subject is asked for the name of a person or an object which he has difficulty in recalling, as, for example, a date or any event whatever. The subject endeavours to remember it, but without success. He says that the word is on the end of his tongue, but his efforts to pronounce it are vain. If, then, a pencil is put in his anæsthetic hand, and it be already accustomed to automatic handwriting, it may happen that it immediately writes the words that the subject has been

fruitlessly endeavouring to pronounce. This proves, in the first place, that the secondary consciousness may have a more extended memory on certain points than the first consciousness. The observation is interesting and deserves to be recorded, since well-conducted experiments by other observers have led to the same result, showing in the same way that unconscious memory may be more extended than conscious memory.* But it is not to illustrate this fact that I report the preceding experiment; it is to give an additional example of the co-operation of the two consciousnesses. In this quest for a forgotten word the first consciousness gives an impulse to the second; a complex influence and one that is difficult to define, but which is nevertheless real, is, therefore, at work between the two consciousnesses.

It is very curious that notwithstanding these direct and intimate communications, the two consciousnesses remain distinct, and that one of them at least, the principal consciousness, continues to ignore completely the existence of the other. It seemed to me that such a situation could not be long sustained, and that if the points of contact between the two consciousnesses were multiplied experimentally, one of them, the abnormal, would tend to develop at the expense of the other. We have, in fact, already seen such a development of the subconscious phenomena that it showed itself capable of absorbing and obliterating the normal ego altogether.† We saw that if during a state of distraction the subconscious person become a little excited, the normal personality lapses and the subconscious person comes to the front, producing somnambulism.

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* Beaunis, Les Sensations internes, p. 133.

† Above, chap. v.

Now, the same sort of thing takes place here. If a hysterical patient be compelled to think of a series of ideas, while unknown to him automatic handwriting reveals and translates all his states of consciousness, there comes a time when the patient stops and shows signs of uneasiness; she feels the ideas vanishing which she has just conjured up, and loses clear consciousness of them. If she has been engaged in a mental calculation she becomes confused in the midst of the figures, can no longer remember them, and declares herself unable to compute the sum, whereas the automatic handwriting, which has not forgotten any part of the process, writes the number without hesitation. The subconscious, in these experiments, invades the field of the principal consciousness, and absorbs some of its ideas; and it may easily monopolize them all and bring on somnambulism.

III.

In order to keep accurately to facts, we must enlarge a little upon the description of what we have called automatic handwriting. This phrase, which has long been sanctioned by usage, but is very colourless, can be applied only to a restricted class of movements, i. e., to graphic movements which are unknown to the principal consciousness. In reality, these are not the only ones that may occur under the conditions described. Sensations, ideas, states of all kinds which occur in the principal consciousness, may bring about a great variety of movements in the secondary consciousness. If handwriting occurs and registers these states, it is because a pencil has been put in the hand or for some similar reason. There is nothing easier than to modify the form of record, for it depends, to a great

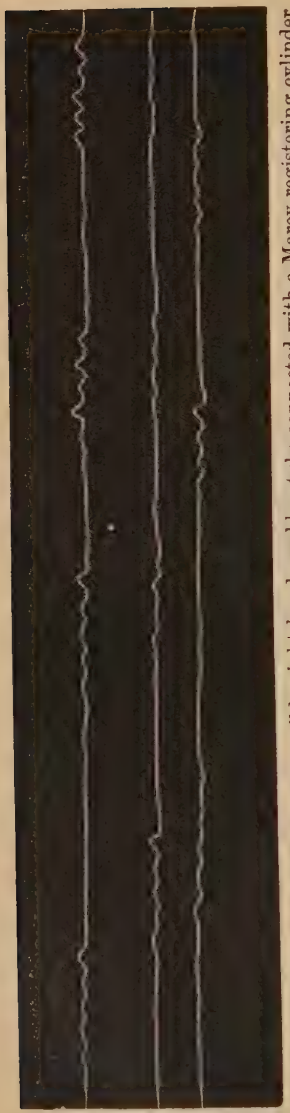


FIG. 4.—A hysteric holds in her insensible right hand a rubber tube connected with a Marey registering cylinder, and thinks of the number 5. She expresses the number by pressures of the hand unconsciously to herself.

extent, upon the position given to the insensible limb or upon the registering apparatus with which it is put in connection. If a rubber tube connected with a recording cylinder be placed in the insensible hand, and the subject be asked to think of a number, the hand will change the nature of its movement; instead of writing it presses the tube, and the number of pressures indicate the figures in mind. The distinctness of these pressures is shown by the cut in Fig. 4.

If the apparatus be put on any other part of the body, this region will express in its own way the idea in the mind of the subject. The movements of respiration even may be modified by this psychological influence.

These curious results are explained very satisfactorily when the workings of subconsciousnesses are understood. The un-

conscious person grasps the idea of the experimenter and does his utmost to comply with it.

The graphic method has the advantage of throwing light upon certain peculiarities which either escaped unnoticed or were hardly noticeable as long as automatic handwriting alone was resorted to. The first point to which I wish to draw attention is the influence which the intensity of the stimulation exerts upon the movements of the subconscious person. We said that automatic handwriting especially tends to show states of mental obsession. It is plain that if we suppose two ideas of unequal force to intersect the field of consciousness at the same time, the idea which is the strongest, the most plausible, or the most interesting, will be the one to direct the subconscious movement of the hand. It is interesting to see this marked difference in the tracings. We may perform the experiment by placing a metronome near the subject and asking him not to listen to the beats; his insensible hand, unknown to him, holds a dynamograph which is connected with a registering cylinder, and it may be seen by the straight line which is traced on the cylinder that the hand has not exerted any pressure (Fig. 5). While the subject endeavours not to hear the noise of the metronome, the acoustic stimulation is from a psychological point of view diminished in force. Then reversing the conditions of the experiment, the subject is asked to listen carefully to the metronome, and we see at once by the strong pressures made rhythmically and unconsciously by the hand that the auditory sensation has increased intensity—at least it is so in all cases of importance.

There is a second point also that the graphic apparatus well illustrates, and it only remains to point it out.

Subconscious movements of the nature of those which we have been studying usually take place in the insensible parts of the body; at least it is there that the experimenter chiefly seeks to produce them, because he wishes to guard against simulation by getting the presence of well-controlled anæsthesia. But anæsthesia is not a necessary condition of the division of consciousness, and a state of distraction is capable of producing similar effects. It therefore seemed well to study the influence that anæsthesia exerts on the force of subconscious movements.

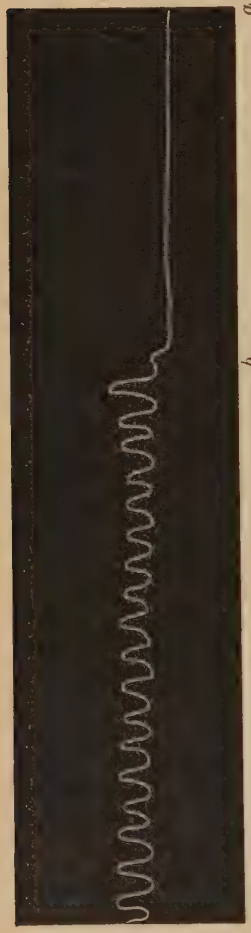


FIG. 5.—EXPERIMENT ON A HEMIANÆSTHETIC HYSTERIC: The patient holds a dynamograph in her left insensible hand while a metronome beats. From *a* to *b* she abstains from counting the beats. From *b* to *c* she counts them. The tracing reads from right to left.

The investigation was made on a young hysterical girl whose right arm was insensible. Two pieces of registering apparatus were used, one on the right and the other on the left arm, and in the first experiment a metronome was set beating, while in the second the subject was asked to think of a numeral. Four tracings appear in Fig. 6, representing the results of

the first tests. We see plainly that the subconscious movements that come from the insensible limb are very distinct in the tracing, while they are not marked in the tracing from the sensible limb. We must not

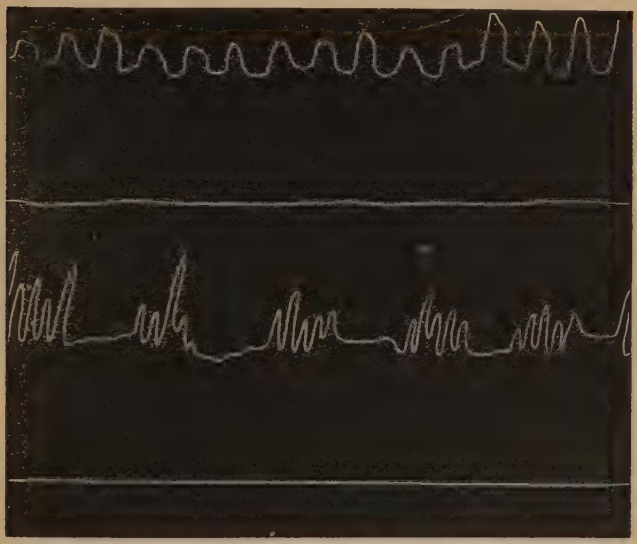


FIG. 6.—GRAPHIC TRACING OF THE UNCONSCIOUS MOVEMENTS OF A HYSTERIC: The first and second tracings belong to the same experiment. A metronome is started beside the subject; the tracing of the insensible arm (1) indicates that the unconscious movements are produced in the arm by the influence of the noise; the tracing of the sensible arm (2) shows no movement. The two following tracings were taken while the subject thought of the number 5; that of the insensible arm (3) shows the unconscious movements which translate the idea of the number 5; that of the sensible arm (4) is free from them.

place too great reliance upon this difference, for it results from a comparison of tracings taken with two different apparatus; and as it is impossible to obtain tambours and levers that are exactly alike, we can not

say to what degree the difference of the tracings arises from the phenomena registered, and to what extent from the apparatus.

But, to obviate this uncertainty, instead of modifying the apparatus we may alter the distribution of the

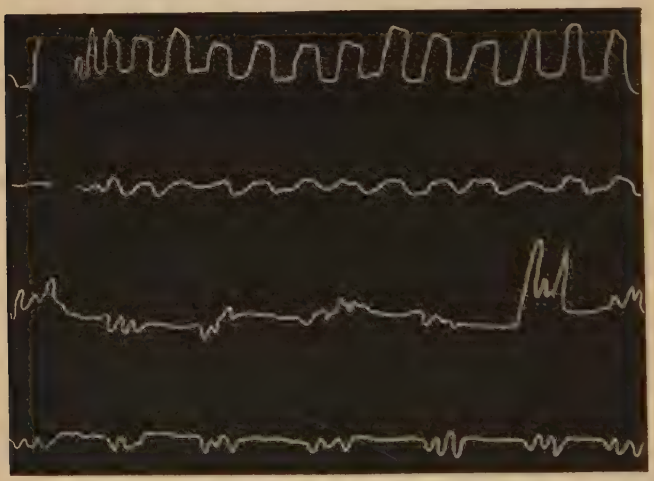


FIG. 7.—The same experiment as that of the preceding figure, only with the difference that the sensible arm has been paralyzed and made anæsthetic by suggestion. The tracings (1) and (3) belong to the arm that was originally anæsthetic (spontaneously); the tracings (2) and (4) belong to the arm rendered anæsthetic by suggestion.

subject's sensibility. A hypnotic suggestion is enough to cause a stroke of insensibility and paralysis in the left arm; then the subject is roused, the cylinder is again put in movement, and, as before, two sorts of subconscious movements are taken—first by employing the beat of the metronome, and next by asking the subject to think of a numeral. The tracings obtained (Fig. 7) should not be compared with one another, for

the reasons already indicated, but with those of the preceding figure.

I simply draw attention to the lines from the left arm: while it is sensible the unconscious movements that it shows are lacking; as soon as a stroke of paralysis is induced these movements become very considerable. The difference is so marked that it requires no commentary. We should add a remark upon detail, however, for no matter how exact it may be made the graphic method needs to be constantly explained if we would avoid errors. It must not be thought that the sensible members do not show any subconscious movement. The negative result in the tracings is due in large part to the fact that a bilateral experiment has been made; the two recording tambours have been simultaneously applied to a sensible and an insensible region. In this way the unconscious person has been obliged to a degree to think simultaneously of two points of his body, and he has preferred to devote himself to the insensible region. If the experiment is unilateral—i. e., if the tambour be applied only to the insensible region—entirely different tracings are obtained, and show plainly the presence of subconscious movements.

CHAPTER VIII.

IDEAS OF SUBCONSCIOUS ORIGIN.

I.

In the researches which we are at present expounding on the co-operation of separate consciousnesses, we have seen so far that the idea conceived, the will to perform an action, and finally the point of departure and the initiative in the phenomenon belong in the principal consciousness—in that which speaks through the mouth of the waking subject. The *rôles* may be reversed and the whole trend of events take on another phase. The initiative may pass to the secondary consciousness—to that which does not talk, and which in a great many cases remains so rudimentary that it was long construed as only certain insignificant movements. A sensation perceived by the secondary consciousness may happen to rouse an idea which will be transmitted to the first consciousness without the latter's being aware of the origin.

We have assumed that to find any insensible region whatever in the case of a hysterical subject, and to hide this region from his sight by a screen, is sufficient to make him completely ignore all the phenomena that are induced in these insensible parts of his body. This is, of course, only an ideal. A perfect division of consciousness, only possible schematically, is necessary to

prevent the subject's normal ego from perceiving anything at all that is happening in a part of his organism. But we made this supposition, at the same time knowing it to be erroneous, because it is necessary to arrange our facts. We can not describe at the same time both the division of consciousness and also the reciprocal influences of the separate consciousnesses which tend to make the division less complete. So we may now return to our first descriptions, and add some reflections which will make them more accurate.

A fact that is quite exact, at least according to my observations, is that the subject does not perceive the stimulations that are applied to an insensible region; he does not perceive them as they really are, and is unable to localize them on the point stimulated. If the palm of his hand is pricked with a pin he does not connect the sensation of pricking with this place; moreover, if he is able to place it he is no longer anæsthetic there. Sensations induced in anæsthetic regions remain, then, unconscious; but they produce other phenomena which penetrate to the normal consciousness; these are ideas, images, and sometimes false perceptions and hallucinations. From this we see that the subject does not perceive the stimulation; but he may have the idea of this stimulation without knowing why and how this idea comes to him.

An experiment may be cited which will enable us better to understand this curious result than a long description would. We take the insensible hand, place it behind a screen, and prick it nine times with a pin. During this time, or after ceasing to prick it, we ask the subject to think of any number whatever and tell us what it is. He replies that he has chosen the figure 9, that is to say, the one that corresponds to the num-

ber of pricks. He did not feel the thrust of the pin, he did not know that he had been pricked, he was anæsthetic; but nevertheless he must have felt something, as the agreement clearly shows. The stimulus, although neither felt nor perceived by the normal ego, produced a certain effect upon this ego, and caused an idea—the idea of the number of pricks.*

This result does not seem strange when we understand completely the nature of these alterations of consciousness. For we see that everything is linked together, and that such and such a fact, which seems strange when looked at separately, is in reality necessary and logical. But general information is not obtainable at once, and when I commenced these studies on anæsthesia I knew nothing whatever of the fact just mentioned, believing myself under illusion when I first found it out. Several times I made notes in my memorandum book of observations during which a hysterical patient, whose anæsthesia had been well under control, declared that at a certain time she had guessed what was being done to the anæsthetic region. One day a woman, named Mel., whose right arm was anæsthetic, who had been made to write the word Salpétrière, declared this word had appeared to her "written in white on a black ground," and yet she had not seen her hand, and had not felt either contact or pricks. I wrote down this strange fact, but, being occupied with other researches, did not continue this one. Two years later I had occasion to resume my studies on hysterical anæsthesia. I carried on the examination of this question systematically, and was not long in ascertaining

* M. Babinski privately informs me that he also discovered this fact independently at about the same time.

that, as a matter of fact, a stimulus that is not felt may yet cause an idea in the mind of the patient.

Finally, this is the way it seems to me the process should be represented to oneself in order fully to comprehend it. All sensorial stimulation produces in a normal individual the suggestion of a series of associated images. A normal individual has consciousness of all that, as well of the images that are conjured up, as of the sensation that is the point of departure for them. With the hysterical patient the stimulating sensation remains in the dark; it continues unconscious, but it retains its suggestive quality, and continues to call up the same train of images as if it were perceived and recognised. The process, therefore, develops naturally. If six pricks are made on the back of a sensible hand, the subject will count them and consequently will think of the number six just as a normal individual would, only with the hysterical patient the first part of the process happens in one consciousness and the second in another.

We will find more than one example of these psychological phenomena in observations on suggestion that have been reported by other authors. I shall designate them for study under the phrase *suggestions from unconscious indications.* The particular characteristic of the experiments which I shall now describe is that the unperceived stimulation rouses associations of natural and, to a certain extent, normal ideas. The idea of number occurring after a succession of pricks is by no means an artificial idea; it unites perception and represents it under a different form. It is very curious to see these natural associations preserved notwithstanding the mental disintegration, and serving as a connecting link between separate consciousnesses that have no longer any knowledge of each other.

There is then an idea of subconscious origin which rises in the normal consciousness of the hysterical patient. What becomes of this idea? What form will it take? What events will it call forth? A multitude of complications may arise here, of which I shall show several examples elsewhere, where other facts borrowed from mental pathology may be cited in confirmation of these.

Sometimes the subconscious idea becomes a voice that talks to the subject, and advises or threatens him; sometimes it is the source of a motor impulse, and induces movements, actions, etc.; it may also give rise to delirium. Nothing of this kind took place with my subjects—I do not know why. Experimentation keeps concealed many artificial conditions which turn the event in one or another of many possible directions. My experiments took the direction of the visual sense; the idea suggested by subconscious sensations has always been a visual idea, and has often amounted to a hallucination of vision.

I do not believe that my own suggestions contributed considerably in giving this form to the suggested ideas, for it was a long time before I understood the fact. When I gave three stimulations, for example, to an anæsthetic hand, the subject simply replied to the question "What are you thinking of?" "I am thinking of the number three." This reply indicated nothing more to me than any other idea of an abstract kind might have done. But little by little the replies became more precise. The subject said, "I am thinking of three in the shape of three points"; another, "I see bars and clubs"; or a third, "I see columns." I did not know what to think of these eccentricities, and I set it down to the patient's imagination; but one day it suddenly

came to me that the subject saw points when I pricked him, and bars and clubs when I moved his anæsthetic finger. Undoubtedly, it was a visual image of his hand or of the stimulation that appeared to him, and then all my subsequent experiments confirmed this interpretation.

II.

We may now proceed to study two principal points: first, what are the unconscious stimulations that may indirectly affect the normal consciousness of the subject; and, second, under what form do these stimulations penetrate to consciousness.

All stimulations of an anæsthetic sensorial organ may arouse conscious ideas through suggestion. I have already cited tactile stimulations in this connection, and it may now be added that the same result is reached by operating with the muscular sense. If the hand is made to write a letter or word, the subject, asked to think of a letter or word, may indicate those that he has written unconsciously. Likewise, if the same movement is communicated several times to a finger, the number of these movements will decide the number in his mind. By laying raised letters or drawings on the skin the image of the letters and drawings may be produced in the subject's mind—he will speak of them if he is asked what he is thinking about. It will also be seen that through such influences the subject may represent his anæsthetic hand or arm to himself in exactly the position in which it has been placed out of his sight. It is also sufficient to ask him to think of any part of his hand whatever in order to find that it is the part that has been pricked, which proves that he localizes the stimulation somewhat, although he does

not perceive it. These processes furnish an indirect means of measuring the sensibility of an anæsthetic member with an æsthesiometer. Things occur in a general way as if the subject got the stimulation translated into the language of another than the tactile or muscular sense. In this way all the details of the tactile stimulation which can be translated, for example, into visual language will be retained.

The experiment might be conducted in such a manner as to make the stimulation no longer of sensorial but of intellectual nature. We may make the anæsthetic hand write several figures and place them under one another as if arranging them for addition; the subject's ego will think, not of the whole series of these figures, but of the total number.

These different kinds of stimulation do not always produce the psychical effects of which we have spoken. If the subject is very much occupied it is quite possible that the slight effect of the stimulations will not be caught or noticed. The patient must be spoken to, made to sit down where there is no noise, with his insensible hand hidden before it is stimulated. It is probable that the unconscious personality which is in all hysterical patients will very quickly understand the experimenter's thought; it hears him question the subject and ask him to think of a number; at the same time it perceives that the experimenter gives a number determined by pricks to the insensible hand. With a little perspicacity he ought to understand the aim of the research; then he enters into it and endeavours to influence the normal consciousness of the subject. He suggests to it in his turn, as he does under many other circumstances, as we shall see further on (in Chapter VI). I have not the slightest doubt that it is this unconscious person-

ality that *whispers* to the first consciousness the idea of the number, and the latter receives the idea without knowing whence it comes. I do not believe, therefore, that the process can be described as a series of associations of ideas; that requires action and reaction of a more complicated kind.

Let us pass from this rather obscure aspect of the question and reach the final result. The idea, whose origin we have studied, appears in the normal consciousness; let us say, for example, that it is an idea of number; nine pricks have been made on the anæsthetic hand, and the subject thinks of the number nine. How has he come to select this number? One might think that he had counted the sensations, and of course it is evident that some one must have counted them in order to know the sum. But this some one is often not the normal consciousness. The normal consciousness knows nothing of it all. The subject can only say one thing, and that is that he thought of the figure 9. Another consciousness has made the addition and given it to him all ready; he only knows the total.

The subject, ignorant of the origin of nine, does not hesitate to claim it as his own. He is under the illusion that he has chosen this number freely, and he is persuaded that if he had cared to he would have been able to choose some other. But by repeating the same experiment he is shown that the contrary is the case, and that he is placed under the temporary impossibility of thinking of any other figure than that one. I have sometimes made use of the following device, which puzzles a great many patients: Any number whatever, say three, is written on a piece of paper, which is folded up and given to the patient, who is asked to choose any number he likes and to think of it for a few moments.

While the patient is determining on the figure his anæsthetic hand is pricked three times, which obliges him to think of the figure 3. Then when he announces this three that he believes he has chosen at random, he is told to unfold the paper and is shown that his thought was foreseen. The success of this little experiment is almost certain.

The foregoing conclusions clearly show that the patient by no means understands the source of the idea that comes suddenly, brusquely, and absorbs the field of normal consciousness. The subjects whom we have studied never—and I desire to emphasize this point—never suspect the origin of these ideas. The division of consciousness has always been complete, absolute, notwithstanding the communications that have been established between the two consciousnesses.

One of the most curious characteristics of this experiment is the state of obsession into which a person is thrown for the moment. This state commences sometimes as soon as the first prick is made. The subject can not think of a number until the series of pricks is ended, even if they were to continue up to a hundred; and, as we have said, it is this number of stimulations that forces itself upon his mind. There are, nevertheless, some subjects who succeed in escaping from this besetting influence by the use of a subterfuge. When asked to think of a number they employ the number of stimulations as if it were a sum of tens, or to insert it in some other combination.

In course of time, when the experiments are repeated, ideas suggested by unconscious perception become extremely intense. I have most often seen them take the form of visual images. The visual image becomes, according to the patients, as dazzling as the sensation of

an electric light. It objectifies itself and may obliterate external objects like a real hallucination, to such an extent that a subject who is reading a paper during the experiment is obliged to discontinue his reading, as he no longer sees the printed characters. When subjects reach this degree of sensibility extremely light stimulations immediately appear in visual form, and they sometimes believe that they *see* the stimulus which is brought to bear on the skin.

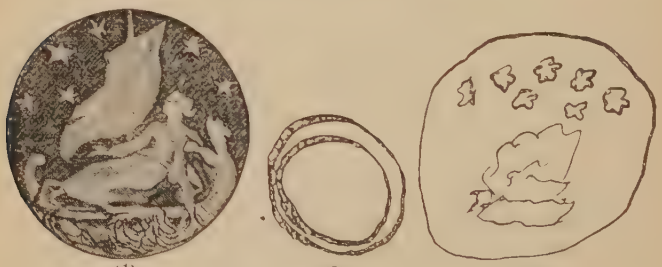
It will be well to cite an example, in order to give a clear idea of the experiment. One day I applied a steel disk, two and a half centimetres in diameter and having on it a little drawing in relief, to the back of the neck of a young hysterical girl where she was anæsthetic. The disk, which the patient had never seen, of course, was held in contact with the skin for some moments. The patient became restless and complained of dizziness. She saw luminous spots of circular shape that burned before her eyes. Each time that the pressure on the disk was increased the vividness of the sensation increased, and if the pressure became too strong it produced the same effect as a jet of electric light, throwing the patient into catalepsy. But not to go as far as that, let us now concern ourselves simply with the contact, in order to see to what degree the perception of the steel disk is reproduced. In order to avoid questions that might prove suggestive I ask the patient merely to take a pencil and draw what she sees. She is a poor girl without much education, never having been taught to draw, afflicted, moreover, in her girlhood with muscular amyotrophy. All the muscles of the arm which she uses for drawing are atrophied to such a degree that she can scarcely bring it to her head. Notwithstanding these defects she sketched the follow-

ing drawing, which I figure beside the original, and in order to permit comparison, I add a third drawing, made under the same conditions by a normal person. This experiment shows us the very remarkable acuteness of perception of the unconscious subject (Fig. 8).

(1) (2) (3)

FIG. 8.—(1) Copy of a design in relief applied to the neck of a subject in order to produce a complex impression of touch; (2) drawing of the impression induced (subject normal); (3) drawing of the impression induced during hysteria.

Three years afterward I again saw the same patient and repeated the same experiment with a different design, and once more obtained a very curious result, which is represented in Fig. 9.



(1) (2) (3)

FIG. 9.—(1) Copy of a design in relief applied on the neck of the subject, as in Fig. 8; (2) and (3) as in Fig. 8.

It is possible that these experiments furnish the key of the phenomenon often described under the name of *transposition of the senses*, and which consists in the

power of certain persons to see by means of the organs of touch. The details which we have just reported show that the transposition of the senses, while being, strictly speaking, an illusion, nevertheless results from the psychological phenomenon of suggestion of images which is itself real.*

III.

It is always interesting to find confirmation of one experiment in others of a different kind; and this may be sufficient reason for showing that in the divisions of consciousness produced by distraction we also find psychical influence exerted by the secondary consciousness upon the principal consciousness.

Usually in the state of distraction the division of consciousness operates so systematically that the multiple consciousnesses do not mingle. We have seen that when by an order given to the unconscious personality, he is made to rise or to walk, the principal personality perceives nothing whatever. He thinks that he remains seated and motionless, although his arms and his whole body obey the order. A hallucination blinds his eyes and prevents him from seeing the actions of the unconscious personality. In these cases the separation of consciousness is as complete as possible.

But there are other circumstances in which the mingling does take place. M. Pierre Janet has given some that are very curious. A suggestion of hallucination was made to the unconscious personality. "The command is not heard by the subject. The origin of the hallucination is thus unconscious, but the hallucina-

* Thanks to this method, I worked the matter out at some length under the phrase *Vision mentale*, in the Rev. Philos., 1890.

tion itself is conscious, and comes suddenly into the subject's mind. Thus while Léonie is not listening to me, I remark to her in a low tone that the person to whom she is talking has a most beautiful green overcoat on. Léonie seems to have heard nothing, and still chats with this person. Then she interrupts herself and bursts out laughing. 'O mon Dieu! how in the world do you come to be dressed up like that, and I never noticed it until now!' I remark to her in the same way, very low, that she has a bonbon in her mouth. She clearly seems to hear nothing, and if I question her she does not know what I have said, but nevertheless she makes grimaces and cries out: 'Ah! who put that in my mouth?' This phenomenon is extremely complex. It comprises a mixture of conscious and unconscious states which are connected from one point of view and yet separated from another." *

The author, we see, reaches the same conclusion that we have. The example cited is the more interesting as it may be taken as a type of the majority of the cases of suggestion. I shall revert later to this important question.

And now if we cast a comprehensive glance over the subjects treated in the three preceding chapters we see that the division of consciousness, as it exists in the case of hysterical patients, does not constitute a sharp line of demarcation, suspending all relation between consciousnesses. Far from it; the psychological phenomena of each group exerts an incessant influence on the adjoining group, and the division of consciousness does not even suspend the workings of the associations of ideas; an idea associated with another rouses and

* *Op cit.*, p. 242.

suggests the other, although the two belong to different consciousnesses. The division then allows the automatism of images, sensations, and movements to continue. It consists simply in a limitation of consciousness; each of the egos is only aware of what takes place within its own domain.

In all that has preceded and in what follows we confine ourselves to a very limited subject; we only cultivate a small corner of the vast domain of mental and nervous pathology. So we may pass over the study of the insane entirely, since nothing very important has been accomplished in that field since M. Ribot's work, which showed so well to what a degree insane patients show manifold personalities. It is necessary, however, to overstep the bounds set ourselves for once, since the facts which we have just studied find so direct an application in mental pathology that we can not but mention it.

As a matter of fact, if it is correct that we may frequently find divisions of consciousness in the insane and in many other morbid conditions, we should more frequently still find consciousnesses which, although separate, yet continue to act upon one another. This in fact occurs in most complex instances.

My experiments, which bore almost exclusively on suggestions of visual images, give no idea of the great number of forms that the connections of these consciousnesses may assume. Not only may visual hallucinations be produced, but hallucinations of all the other senses, together with fixed ideas. The will and the emotions may be equally affected—a fact that probably explains certain irresistible impulses which the patient feels without losing consciousness of his identity.

M. Seglas * has recently shown more clearly than ever before that some patients may show distinct groups of psychological phenomena, and that there may be at certain times communication of ideas between these groups. These ideas with the insane take by preference the auditive or motor form; more commonly there are voices that the patient hears. The voices speak words with meaning, and the words answer, we may rest assured, to a state of preoccupation of which the patient has no clear consciousness. Sometimes the patient does not hear the sound distinctly, but he feels a movement of articulation produced in his mouth, and he understands the meaning of the words that are on the point of being spoken. It is motor verbal hallucination. At other times his hand writes spontaneously without his being aware of it. It is not necessary to dwell at length upon this subject in order to show the interest and analogy of these observations with those that have been made upon hysterical patients.

* Progrès médical, Nos. 33, 34, 1888, and Ann. Medico-psycho., January and July, 1889. See also an interesting article by F. de Sarlo, in the Revis. de Freniatria, ii and iii, 1891.

CHAPTER IX.

PLURALITY OF CONSCIOUSNESSES IN HEALTHY SUBJECTS.

I.

It has now become trite that the majority of experiments performed upon hysterical patients give very nearly the same results with healthy persons, but less conspicuously. Hysterical patients have been studied so widely by contemporary French psychologists that they have come to be considered as reagents available for the demonstration of certain more delicate phenomena of normal intelligence. This becomes very apparent from our present experiments.

There are two methods of exposition which we might adopt: first, we might cast about for examples of mental dissociation of current life, as, for instance, this: moralists and poets have always held that several egos existed in each of us, and that they chiefly revealed themselves in violent manifestations of passion. Notwithstanding the literary interest attaching to these researches, however, I think it advisable to pass them over because they give very vague results. It is better from every point of view to employ a finer method.

We may confine ourselves, second, to actual experiments made upon persons who are sane or nearly so, and who give proofs of dissociation of the elements of

consciousness. These experiments are exact—as nearly so, at least, as psychological experiments can be—and their results, while not perhaps as general and brilliant as poets' descriptions, nevertheless seem to me a thousand times to be preferred.*

All the following experiments have also one peculiarity in common—they throw a person into such a condition that without intending it, and often without knowing it, they tell their most secret thoughts. In other words, the person is induced to perform unconscious movements.

The psychological interpretation of these experiments varies somewhat; the theory formerly accepted was simple enough. It was admitted that the chief characteristic of unconscious movements is an influence exerted by thoughts on movements. All thought—and particularly if it is concrete, if it is an image—has a tendency to expend itself in movement; it contains within itself a motor germ; more than this, the thought is a movement commencing to outline itself. It has been said with good reason that to think is to restrain action; it is to perform an act of stoppage of the motor tendencies of the images that occupy the mind at a given time. Let us suppose that for any reason whatever this check did not take place. The thought would express itself in action, the internal psychical state would take on external form, independently of the will of the person and often without his knowledge. There is an automatism of images, and in order for it to show itself a

* These studies on the relation between the reaction of normal and hysterical subjects bring up other problems for discussion, as, for example, that of the relation of hysteria to hypnotism. Such problems I have to pass over, contenting myself with the description of the experiments.

single condition is required—do not interfere with it, let it alone.

Such is, in brief, the theory of automatism that has long been held. It seems to me, as has been said, that it should be made a little more complicated by adding to it the simultaneous play of several mental syntheses or consciousnesses. The unconscious movements of normal individuals should be considered, I think, not as the simple effects of motor tendencies of images, but as the effects of very slight mental duplication. This connects them with the observations and experiments that have been made upon hysterical patients, and so we might say confidently that they are, as it were, episodes, incomplete fragments or passages from the history of multiple consciousnesses.

But to cite the facts and experiments! Following a historical order, I may describe first the experiment of the "exploring pendulum," which, as is well known, was clearly analyzed first by Chevreul. Then I shall take up the study of automatic handwriting and thought-reading.

The exploring pendulum is a very simple instrument. It is merely a solid body suspended by a string whose free end is held between the fingers. But while the instrument is simple, the phenomena which it enables us to observe are extremely delicate, so much so that very different interpretations have been put upon them.

The letter of Chevreul to Ampère on "A particular Class of Muscular Movements" is worth quoting at length. This letter was published in the Revue des Deux Mondes, May 1, 1832. It contains a *résumé* of Chevreul's experiments with the exploring pendulum:

"My dear Friend: You ask me to give you a description of the experiments which I made in 1812 in order to discover whether it is true that, as has been said, *a pendulum made of a heavy substance on a flexible string oscillates when held in the hand over certain bodies even when the arm is immovable.* You seem to think that these experiments are of some importance, and in yielding to the reasons that you give me for publishing them allow me, notwithstanding, to say that I need all the faith I have in your judgment to justify me in placing before the eyes of the public facts of so different a kind from those which I have investigated heretofore. Be that as it may, in accordance with your desire I am going to describe my observations, and I shall present them in the order in which they were made.

"The pendulum that I used was an iron ring suspended by a linen thread. It was arranged by a person who was extremely anxious that I should verify for myself the phenomenon that occurred whenever she held it over water, a lump of metal, or a living being—a phenomenon which she then demonstrated to me. I admit that I was surprised when I got the same result upon myself by taking the cord of the pendulum in my own right hand and holding it over mercury in a copper vessel, over an anvil, several animals, etc. I concluded from my experiments that if, as I was now sure, only certain bodies were suited to determine oscillations in the pendulum, it might be that when other bodies were interposed between them and the pendulum in motion, it would stop. Notwithstanding this expectation I was greatly astonished when, taking a glass plate, a cake of rosin, etc., with my left hand and placing one of them between the mercury and the

oscillating pendulum, I found that the oscillations diminished in amplitude and ceased altogether. They began again when the intervening body was drawn away, and ceased again when it was put back. This succession of phenomena was repeated a great many times and with a constancy that was truly remarkable, whether the intervening body was held by myself or by some one else. The more extraordinary these results seemed to me, the more I felt the need of ascertaining whether they were really independent of all muscular movement of the arm, as was positively reported. This led me to rest the right arm, that held the pendulum, on a wooden support, which I could push at will from the shoulder to the hand and back again from the hand to the shoulder. I soon noticed that, in the first case, the movement of the pendulum decreased as the support came nearer to the hand, and that it ceased altogether when the fingers which held the cord were themselves supported; where in the second case the contrary effect took place, yet for equal distances from the support to the cord the movement was now slower than in the other case. This led me to think it quite likely that a muscular movement, taking place without my knowledge, determined the phenomenon, and I felt the more impelled to this view, since I had a sort of memory—vague, it is true—of having been in a very peculiar state of mind while my eyes were following the oscillations described by the pendulum which I held in my hand.

"I repeated my experiments with the arm perfectly free, and I was convinced that the memory of which I have just spoken was not an illusion of my mind, for I felt very distinctly that while my eyes followed the oscillating pendulum I had a *disposition* or tendency to

movement which, although it seemed involuntary, was more satisfied, as it were, when the pendulum described larger curves. Then I thought that if I repeated the experiments blindfolded the results might be entirely different from those already obtained, and this is exactly what happened. While the pendulum was swinging over the mercury my eyes were bandaged. The movements soon diminished, and although the oscillations were slight, they were not perceptibly diminished by the intervention of the bodies which had seemed to stop them in my former experiments. Finally, holding the pendulum for a quarter of an hour from the time when it was at rest over the mercury, it did not set up any movement whatever, although during this time and without my knowledge both the glass plate and the cake of rosin had been interposed and withdrawn several times.

"Now, this is the way I explain the phenomena:

"While I was holding the pendulum in my hand the muscular movement of my arm, although insensible to me, brought the pendulum into movement, and the oscillations once commenced were soon increased by the influence of my sight in placing me in this particular state of *disposition or tendency to movement.* Now, we have to admit that the muscular movement, although it is increased by this *disposition*, is yet so weak that it may be stopped, not by an act of the will, but simply *by the thought of trying whether such or such a thing will stop it.* There is, therefore, an intimate connection established between the execution of some movements and the act of thought about their execution, although this thought may not amount to an act of will directed to the muscular organs. It is here that the interest of the phenomena which I have de-

scribed seems to me to centre for psychology, and even for the history of science. It proves how easy it is to mistake illusions for realities whenever we are engaged with a phenomenon in which our own organs have a part to play, especially under circumstances which have not been adequately analyzed.

"As a matter of fact, if I had confined myself to the swinging of the pendulum over certain bodies and to the experiments which showed the oscillations arrested when the glass, rosin, etc., were interposed between the pendulum and the body which seemed to determine the movement, I should certainly have had no reason for not believing in the magic wand or something of that kind. And it can easily be understood how men in perfect sincerity, and intelligent, too, are driven sometimes to ideas that are utterly chimerical in order to explain phenomena which really do not have their origin in the physical world of science.* Once convinced that nothing at all extraordinary existed in the results that were so surprising to me, I found myself afterward in such a different disposition from that in which I was when I first observed them that I could not reproduce them, although I tried long after and at different periods, but always in vain. . . .

"The foregoing facts and the interpretation that I

* I can very well conceive that a man, whose attention is completely fixed on the movement of a rod which he holds in his hands, might in good faith, through a cause which he does not understand, experience from some slight circumstance a tendency to movement sufficient to bring about the phenomenon which he expects. For example, if such a man is seeking a spring of water with his eyes open, the sight of the broad green lawn under his feet might determine in him muscular movements like those which move the rod, by an association between the idea of growing vegetation and that of water.

have put upon them have led me to connect them with others that we may observe every day. By establishing such connections their analysis becomes at once more simple and more precise than it had been, and at the same time a group of facts appears whose general interpretation is capable of a wider application. But before going further, let us bear in mind that my observations show two principal incidents:

"I. Remember that a pendulum held in the hand moves, and that it moves without one's being conscious that the muscular organ imparts any impulse to it—*that is the first fact.*

"II. Observe this pendulum oscillate, and see that its oscillations become more extended by the influence of sight on the muscular organ, and always without one's being conscious of this—*that is the second fact.*

"Now, a tendency to movement caused in us by the sight of a body in movement is found in many other cases. For example:

"1. When attention is fixed upon a flying bird, a stone passing through the air, running water, etc., the body of the spectator is turned to a greater or less degree in the direction of the movement.

"2. When a ball player or billiard player follows with his eye the motion of the body to which he has imparted movement, he leans his body in the direction which he wishes to see the moving body take, as if it were still possible for him to direct it toward the goal which he wishes to see it reach. . . .

"The tendency to movement in a given direction, resulting from attention given to a certain object, seems to me to be the primary cause of many phenomena that have generally been classed under the head of imitation. Thus in a case where sight or even hearing di-

rects our thought to a person who is yawning, the muscular movement for yawning commonly results in ourselves; the same is true of the contagion of laughter. And this example shows better than any other a circumstance that seems to me to give strong support to the interpretation which I give to these phenomena—*i. e.*, that laughter, although faint at first, yet may, if kept up, *accelerate* itself, so to speak (as we have seen the oscillations of the pendulum that is held in the hand increase in amplitude under the influence of sight), and this accelerated laughter may end in a convulsion."

Chevreul's merit lies in the fact that he clearly saw that the oscillations of the pendulum depend on psychological movements in the mind of the performer of the experiment. The pendulum, in short, is only a convenient instrument for registering the unconscious movements of the hand; it makes them perceptible by increasing them. If we attempt to condense Chevreul's rather diffuse explanations in a few words, we may say that he attributed the phenomenon to what is now called the motor power of images. I shall revert to this explanation after having cited some other examples of unconscious movements.

Automatic handwriting may be considered as psychological action of the same nature as that of the exploring pendulum, only it is a little more delicate and more complex. In order to explain the conditions under which it exists and may be induced, I shall borrow the following details from an interesting note that M. Gley has published *à propos* of one of my articles on hysterical anæsthesia and the unconscious movements that may result from it.

"The person on whom I perform this experiment,"

says M. Gley, "takes a pen or pencil. I tell her to think of a name, and that I am going to write this name (without any communication from her, of course). Then I take her hand, and although I *seem* to guide it as one teaches a child to write, yet I really do nothing, and she herself writes the name in question unconsciously. Inversely, one may hold the pen himself in the experiment and make the subject guide the hand. I have always had better results from the first method. A wise precaution is to make the subject close the eyes or look straight forward into space, or, indeed, anywhere but on the paper.

"This little experiment has generally succeeded very well on a great many people of different ages, of both sexes, and of various social circles. That is to say, it is not necessary to deal with any degree of nervous disease such as hysteria. In the majority of cases the writing movements are absolutely unconscious. In some cases, after a time which is variable but always very appreciable, the subject becomes aware that he is performing movements, and they then cease to be unconscious and are simply involuntary. I have always succeeded at the first trial with persons who know something about drawing, and better still with painters, sculptors, etc."

Similar experiments have been made with the same results by a great many authors, Preyer, Sikorsky, etc. The variations are so insignificant that they do not deserve mention. It is easy to see that automatic handwriting is the same psychological effect as that seen in the exploring pendulum. In both cases a movement is produced without the subject's consciousness, and this movement of the hand expresses an inward thought of direction in space, as in Chevreul's experiment, or

of a word to write, as in the experiment of automatic handwriting. The analogy of the two experiments is so striking that a common explanation has properly been given them. Those who have endeavoured to explain the movements of the exploring pendulum by the motor power of images have appealed in this case to the same psychological fact. For this reason it will be interesting to reproduce M. Gley's explanation:

"These things happen as they do, I think, because these motor elements are present in every representation and play a more or less important rôle, according to the individual, both in the constitution and in the recall of the image. What is a word, for example? M. Charcot showed explicitly a long time ago (see particularly Progrès medical, 1883) that a word is a complex association of four different kinds of images—auditive, visual, images of motor articulation, and motor graphic images; and his clinical anatomical researches proved that from the disturbance of each one of the cerebral centres necessary for this complex function of language a definite form of aphasia results (verbal deafness or blindness, motor aphasia, and agraphia).

"But each group of images is not equally important with all individuals. It is well known that some depend more upon auditive images, others are visuals (to use the expression current now), and others again are motors. For some persons to think of a word is especially, and for some others exclusively, to hear this word (auditive image); others to see it, still others to pronounce it (motor image of articulation), and for the last group it is to write it (graphic image). But it should not be forgotten that for a great many (the *indifferent*, as M. Charcot calls them) the images of all three categories may be used. Consequently, I am

inclined to believe that if a person of the purely auditive type were found and the experiment in question were tried on him, no result would be obtained.

"Yet there is one reservation to be made. Might it not be possible that even with the auditive type in some cases—whether under the influence of slight emotion produced by an experiment which appears somewhat alarming to most people, or whether by reason of the attitude taken (and M. Binet, in the article cited above, has shown clearly the importance of the attitude in the production of unconscious movements with hysterical patients), or for both reasons together—the experiment might succeed? And then a certain conclusion follows, i. e., that in every image there are motor elements—integral elements, as it were. Any perception by sight is impossible without movements of the muscles of the eye and the muscle of accommodation. The formation of any auditive image does not result simply from the transmission to the brain of sounds that are heard, but also involves movements of the muscles belonging to the ear. All these phenomena of movement leave their traces in the brain; and these motor traces are associated with other traces of the same nature, from which the graphic movements result. But this association may be stronger or weaker. In each case we find that with both the pure auditives and visuals every image includes motor elements which in some instances may rouse graphic images, although with these individuals the latter play no part in the usual exercises of thought.

"It is important to point out here that very generally this motor part of the mental representation is unconscious, always excepting the phenomenon known as *internal speech*. Yet we know that some practice

in introspection is required even to be conscious of internal speech. As a matter of fact, all mental representation is only a resultant. It is from this resultant alone, I think, that one is habitually conscious; the simple constituent elements are not known. Thus the timbre of a sound is due to the fact that accessory notes unite with the principal note; the musical sound perceived is formed by simple agglomerated sensations, so to speak, which are not individually perceived, yet without them the sensation would not be what it is. Experimental devices have to be resorted to to show that the latter includes the former as integral elements. On this view, it seems to me, the experiment described may be explained. Just in this same way organic, cardiac, vaso-motor, secreting, and other phenomena which accompany, almost if not all, the affective states, undoubtedly assist in establishing these states, and perhaps, so far from following, may even precede the conscious phenomenon. But they remain, none the less, in many cases unconscious.

"It follows, therefore, that particularly for one class of individuals (the motor type) to imagine an action is to begin the performance of it. And thus we find a profound psychological reason for the old judicial maxim, 'Take the will for the deed.'" *

Thought reading, or what goes by that name, assumes the existence of unconscious movements, which are of very nearly the same nature as automatic handwriting. This performance has often been studied and described, especially by amateurs, and it constitutes in fact a society game. It forms part of what might be

* [Prof. J. Jastrow has invented an instrument called the "automatograph," by which automatic movements may be registered. —Ed.]

called amusement psychology. Yet some scientific men have engaged themselves with this question: first Bird, of America; then Richet, Gley, Varigny, who made several contributions to the Société de Biologie in 1884; then Robertson, Galton, Romanes, etc., in England; and Preyer, Sikorsky, etc., in Germany. In most cases the experiment is arranged as follows: A person is asked to think hard of an object, with as much concentration as possible. The object may be far or near. A second person takes the hand of the first, and endeavours to guess his thought without questioning him verbally. If it is an object that has been hidden near the place where he is, the person who guesses is lead by the other to the hiding place. This is the experiment. The number of successes excludes an explanation by chance, and the honourable character of the people with whom it has been successful excludes thought of fraud. How then can a person guess the thought of another by simply holding his hand? It is done evidently by the movements of this hand, movements which are weak, faint, almost imperceptible, but nevertheless very significant to any one whose touch is trained and who is quick to understand. Thanks to these movements, one is led to the object sought with a precision of which one would never dream before performing the experiment himself. Bird was right, therefore, when he called such reading "muscle reading."

The exact nature of these movements is obscure, and, moreover, they vary very much with different people; but it is easy to understand what they may be in some cases. When the person who is thinking of an object is led far away from this object, the hand may resist a little—a very little. The resistance will be less if the movement is in the direction of the object; and, finally,

when in the presence of the object the hand may perform a slight movement of bending or of stretching out, or the person may give a slight start that indicates that the object is there. Calm, well-balanced persons, who never grow impatient and are successful in controlling their muscles, do not make these movements.*

We may understand then that these movements are generally neither voluntary nor conscious to the person who makes them. It may be, also, that the person who guesses or reads does not feel the movements distinctly, and yet is guided toward the object or guesses the thought without really knowing how the thing is done.

This explanation of thought reading by movements of the hand was clearly established first by Bird. M. Gley had the ingenious idea of directly registering the movements, and the results of this method are interesting enough to merit extended quotation.

"The indications in agraphia," says M. Gley, "show that during the experiment there are slight contractions, movements of pressure, etc., in the subject's hand, and these, we may well imagine, both lead in the direction thought of and then increase in intensity when the object is reached. And at that moment, also, information is given by the sudden immovability of the subject, by the cessation of all twitchings in his hand, and by the sensation of relaxation of the muscles which is experienced. There is a sort of sensation of stoppage, consequent upon the state of continued tension or exaggerated tonicity through which the muscles have just passed. As for the movements themselves, it is pos-

* [M. Binet probably does not mean this strictly, since it violates the law of "dynamogenesis," formulated so well above in the quotation from Gley; besides, experiments show that no one is quite free from these movements.—Ed.]

sible to distinguish two kinds in different subjects. In some, indeed, there are the slight movements of the hand, the muscular tremblings of which I have just spoken; with others, there is a sort of movement of traction in the whole arm and hand, and in this latter case one almost feels himself led toward the object. And, finally, with still others, both the traction and the hand pressures are present. On the other hand, it seemed to me in several experiments that the subjects who showed movements of pressure are those whose hand relaxed when the object was reached; while the hand of the other sort of person, on the contrary, still remained contracted as if in a sort of imperative gesture.

"I got tracings of these movements in a very simple way—by placing in the palm of the subject's right hand the tambour of a double cardiograph, while my own hand was laid on the metallic surface of the tambour and the subject's fingers rested on the back of my hand. A connection was made between this little appliance and another tambour whose lever pen wrote on a registering cylinder. In some experiments I used the myograph, placed on the flexor muscles of the forearm, and obtained similar tracings. As I could not increase the length of the transmitting rubber tubes too much, the search for the object was never made over long distances, and consequently the experiments were always of short duration.

"To be sure, the analysis of movements obtained in this way is not easy. It may even be asked, Is it possible? For the form of these slight muscular, or possibly only fibrillar, contractions is not very distinct in the method of recording which I contrived, and the defects of it I shall not conceal. But it was my idea that the essential thing, when such a thing as mental

suggestion was in question, was to show the reality of the movements which were involved and so to furnish real and objective proof of them." *

M. Gley, in subsequent experiments made with M. Richet, found that, when slightly under the influence of hasheesh, the effect of which is to increase the vividness of mental images, automatic handwriting and the other subconscious movements are shown by persons who do not seem to have these reactions during the normal state.

The experiments just summed up have been grouped under the phrase unconscious movements, and, as I have already said, they have been most frequently explained as due to the motor elements in mental representations. It remains to show that this interpretation, although not entirely incorrect, is still insufficient, and that the kind of unconscious mimicry by which a person in some cases expresses his inward thought can be explained only by the phenomena of double consciousness. I shall endeavour, therefore, to establish a theory which is a little different from the one commonly accepted, but more general and comprehensive.

The reader of the earlier chapters must have been repeatedly struck by the analogy that exists between the so-called unconscious movements of healthy subjects and the various reactions of the secondary personalities of hysterical patients. These phenomena are really identical. They only differ in extent, in external circumstance, or in degree of development. Let us take automatic handwriting, for example. It is pos-

* It is very desirable that special apparatus should be constructed for registering unconscious movements in varying conditions. [See the note above on Prof. Jastrow's apparatus for registering movements on a plane surface, i. e., in two dimensions.—Ed.]

sible, as M. Gley has shown, to induce a normal person to write the word of which he is thinking. The hand writes it without his willing it. The same holds true for the hysterical patient, whose automatic handwriting is developed to such a degree that no special preparation or contrivance is required in order to observe it. Now, we have seen in detail that this automatic handwriting of a hysterical patient is by no means a detached phenomenon, with no connection with his other peculiarities. It is a part of a whole. It is one of the thousand means by which the secondary personalities arise and manifest themselves. And many resemblances exist between this and other manifestations of plurality of consciousness. Why should it not be the same then with a normal individual? It is very probable that in his case, too, automatic handwriting, being of the same sort as in the case of hysterical patients, forms part of the same aggregate of phenomena, and so has its origin in the same original cause, disaggregation.

This hypothesis will appear so probable to those who have observed hysteria closely that it may seem unnecessary to prove it. I thought, however, that it would be interesting to study the question systematically for myself, by subjecting normal subjects to exactly the same series of experiments as were performed upon the hysterical patients. I shall accordingly give briefly the views to which I was then led.

Anæsthesia of a part of the body is a necessary condition of plurality of consciousnesses and of personality in hysterical patients. One would think that the equivalent of that could not be found in normal persons whose sensibility is intact. But we have already seen that division of consciousness may be produced by another cause than the insensibility of the sensorial or-

gans; a particular state of mind may bring about the same results. This is the case with healthy subjects. These subjects may present special conditions of mind which tend to bring on mental disintegration.

There are a great many of these mental conditions, but I shall only stop to examine two.

In the first place, there is a condition which is very clear and very easily defined. It is that of the person who tries to understand several different psychological phenomena in his consciousness at the same time. For example, one seeks to perceive at the same time a great many sensations arising from different objects; or tries to perform together a number of movements which have nothing in common, neither form nor purpose.

In the second place, there is the other state in which the subject's attention, instead of being divided between various phenomena that are induced in him, is concentrated upon one thing, thus causing a state of distraction for all the rest. We shall see that this particular orientation of attention produces very different effects from those that may be observed in the former case of "collective" or diffused attention.

II.

Every one knows how difficult it is to follow two different lines of thought at the same time, such as reading and listening to a conversation. Each hinders the other. To find out exactly what happens in this case the following experiment may be tried: A person is asked to perform an intellectual task and at the same time to do muscular work. As the graphic method enables us to analyze the latter performance by means of

a tracing, it is possible to recognise in the characteristics of this tracing the mental changes which result from the struggle of the attention.

The conditions of the experiment may be very simple: Thus a rubber tube closed and connected with a registering apparatus is placed in the hands of the person to be experimented upon. She is asked to press the tube a certain number of times, according to a certain rhythm which she is to try to keep up throughout the whole experiment. Then she is asked at the same time to perform an intellectual task, such as reading aloud, reciting a piece learned by heart, making a mental calculation, or solving any problem whatever.

The tracing taken under these conditions shows irregularities which commence at the time the additional mental work occurs, and ends when it does. These irregularities then may be studied to see their character. The slightest of them is a prolongation of the intervals of pause that separate the pressures of the hand. When the mind is not occupied by any other work it is an easy matter to give perceptibly uniform intervals of rest between the hand pressures. But this ability to measure time is the first thing to become confused. I noticed it in my own case when I made a mental addition at the same time that my right hand was making a series of pressures, although I tried to keep to the intervals adopted at the start. The pressures that were made during the little work of calculating were separated by greater space than the earlier ones. Sometimes this lengthening continues after the calculation has ceased. With others, moreover, it is very considerably prolonged. Sometimes they stop pressing for two or three seconds without intending it. There is a sort of forgetfulness or temporary loss of memory.

Very frequently also changes in the shape of the curve are produced; the height diminishes or the upward stroke is prolonged.

In case one sets himself to make several pressures between the intervals of rest, the number of these pressures may be either diminished or increased. Sometimes the number agreed upon is quite forgotten. One patient commenced by making five pressures; then during the mental calculation this number dropped to four or rose to six. When the calculation was finished and the attention again fixed on the movements of the hand, he no longer knew how many times he should press.

Very usually also a lack of co-ordination shows itself in the tracing. Two series of contractions that should be separated by an interval of rest are run together. The muscular contraction may appear under the most varied forms; a second contraction may begin before the first has ceased; two successive contractions appear entirely unequal in duration; some may be prolonged for more than a second, while others scarcely last a tenth of a second; and, lastly, in some tracings there is a certain tremulousness. These irregularities may be looked upon as a genuine motor delirium, which is, moreover, the expression of a corresponding delirium of ideation.

But the most interesting modifications are those which occur in the domain of consciousness, and occasionally these experiments are not without analogy with those performed upon hysterical patients. In pressing while a mental calculation is being made, the clear consciousness of the movements that are performed is lost. When the experiment is over the person is often unable to say whether he has pressed once too many or once

too few times, or whether the form of the contraction has been regular or not. He is not unconscious, because he knows that he pressed, but he has a vague, weak consciousness. The alteration of consciousness—and this is a very instructive fact—may sometimes exist when the tracing is quite regular and shows no mental disorder whatever. Further, when he is asked to give pressures in series of fives, while at the same time making a mental calculation, he is sometimes able to make the number of pressures desired, but without knowing it; and before looking at his tracing he is unable to say whether it is correct or not.

This loss of consciousness, under the conditions indicated, gives an interesting psychological character to the movements of the hand; they remain voluntary movements while they are yet unconscious, similar to those studied in Chapter V. It is very probable that persons who produce regular tracings without being conscious of it would show a marked tendency to division of consciousness into several independent mental syntheses.

The plan of the experiment just described, however, only enables us to study one of the two mental operations which are in conflict—the one which has a motor form and which is traced on the cylinder. But it is easy to get tracings of both the operations by asking the person to do different things with the two hands simultaneously.

In this case, as in those that we have just examined, the two actions are not nearly so well done as if they were each performed separately. But the most striking fact is the tendency which each of the two kinds of movements has to intrude some of its characteristic elements into the other. The two motor syntheses be-

ing face to face, each seems to try to influence the other. We have already found this to be the case when an intellectual operation goes on at the same time with a complicated movement of the hand. I pointed out the case of one person whose hand kept time with the rhythm of the verses which she was reading aloud. But this accord is short-lived. Yet when movements of the two hands coincide, this influence is more marked.

In summing up the foregoing we must bear in mind the following facts: When a person divides his attention between two voluntary mental transactions, endeavouring to perform them simultaneously, each of these transactions, especially on the first trial, is performed less correctly than if it were done separately; and, in the second place, it often happens that one of these transactions tends to force its particular form or rhythm on the other.

But the dominant fact, which seems to me most important, is that with some persons a division of consciousness is produced; one of the two conflicting transactions leaves the subject's consciousness and continues to act without his direction and without his clearly perceiving it.

III.

What division of attention sometimes brings about can be more surely induced directly by another process —i. e., the state of distraction. The reader will remember that with hysterics the concentration of the attention on a single point readily maintains a state of distraction sufficiently intense for the development of extremely complicated subconscious phenomena. I repeated the same experiments on healthy subjects and obtained similar results.

As it was easy to foresee, not only was automatic handwriting found in healthy people, but the whole series of subconscious actions of which automatic handwriting is but an expression, and which, taken together, constitute the sign of division of consciousness. There is, therefore, in my opinion, a close resemblance, from this point of view, between hysterical patients and normal individuals. The arrangement of the experiment is the same in both cases, but it is necessary when the subject is not hysterical to use some supplementary means of increasing the state of distraction, for it is by no means as intense as in hysteria. Usually it is not enough to have the person read an interesting book or chat with a third person, in order that when one takes his hand he shall pay no attention to what is done with the hand. In spite of himself his attention reverts to the experimenter instead of being concentrated elsewhere, and it is necessary to strengthen the state of distraction by a device of some kind.

The one that I have used is so natural that it would certainly occur to all those who might wish to repeat my observations. In the majority of experiments the person's hand is led to move spontaneously without his will. The important thing is to avoid having the person notice these spontaneous movements of his hand; for if he thought of it, unconsciousness and automatism would disappear. To guard against this derangement he must be made to think that his hand is continuously inert and passive, and that it is the experimenter who, from time to time, for the requirements of an experiment which he does not choose to explain, imparts a movement to the hand. That is enough to quiet the subject, whose hand is perfectly passive from then on. He becomes indifferent, and is in

excellent mental condition for the division of consciousness.

After these few preliminary remarks, I may now rapidly indicate the principal tests to which the person is subjected.

In the first place, he yields to anæsthesia by distraction. The person thus diverted becomes by no means absolutely insensible, in the sense that a hysterical patient does (whose skin can be pricked and his arm raised without his knowledge); his sensibility is not destroyed, but the acuteness of some of his perceptions is very much diminished. Two compass points applied to the hand and raised quickly give the sensation of one prick only, when with the same range and on the same region the two points would have been perceived as two if the subject had fixed his attention on his hand. Here is therefore anæsthesia by distraction. It is short-lived and indeterminate, but it exists.

Passive movements of repetition are also very easy to induce. A pencil is placed in the subject's hand and he is asked to hold it as if he were going to write, then the hand is guided and made to trace a uniform movement, one which the subject performs with the greatest ease, such as dashes, pothooks, rings, or little points. When this movement has been communicated for some minutes the hand is gently left to itself, or still touched so that the person's attention will not be drawn to it, but the movements are no longer guided. The hand left to itself makes some slight movements. The experiment is then resumed, and patiently repeated for several minutes. The movements of repetition by the hand also are improved. After four such periods I have seen a person's hand trace not less than twenty-four rings without stopping.

The presence of these subconscious movements of repetition teaches us that there is an unconscious personality there which the experiment brings out; but it is clear that this personality is far from having the same development as in the case of hysterical patients. The trouble one has in making him repeat these movements proves this. The experimenter can not impart movements at will; he is obliged to choose those that succeed best. Generally those are repeated fairly well that can be performed by a single stroke without change of direction and without stopping.

Graphic movements, by their delicacy, are less likely to attract the subject's attention than movements of flexing and extending the limbs. These latter, however, may be repeated by an unconscious person, and in this connection it is curious to notice that the doubling up of the fist is repeated better than the bending of a finger.

The utterly rudimentary character of the unconscious subject is very evident from the facility with which certain habits may be imparted to him. When he has been made to write rings several times in succession, the hand becomes accustomed to this movement and produces it indiscriminately; for if one wishes to make him trace pothooks next, the movements very soon get distorted and change into rings. The memory of this unconscious person is of so small a compass that he is not even capable of retaining the several kinds of movements.

An unconscious subject not only has memory, he may also receive and execute some suggestions—though very elementary ones, it is true. These suggestions may be given by means of touch. By simple pressure the hand is influenced and made to move in any direc-

tion whatever. It is not a mechanical impulse, it is clearly a touch suggestion. If, by pressure, the hand is made to move, another pressure, equally light, stops it, and yet another, of quite a different kind, makes it write. It is difficult to detect any difference between these pressures, but if the experimenter when making them has a definite intention, this intention is often understood with great tact by the person's hand. Nothing is more curious than this kind of partial hypnotization, to which is due the fact that a person believes himself to be, and really seems to be, completely himself and in full possession of all his senses, while his hand submissively obeys the touch-orders from the experimenter.

These few details seem to me to be amply sufficient to demonstrate the possibility of rousing an unconscious personality in healthy persons or those who are very nearly so. This unconsciousness, we repeat, does not reach the degree of development attained in hysterical patients, nor is it as brilliant. It will not spontaneously write letters and confessions, but it is still something positively existing.

Its existence, well established, enables us to show that automatic handwriting, as it is induced in healthy people, as M. Gley described it, is a phenomenon of the division of consciousness, and not a simple effect of the motor power of ideas. In fact, instructed by my former experiments on hysterical patients, I have been able to recognise some points in the automatic handwriting of healthy persons which leave no doubt whatever. For if we carefully examine the way in which the hand behaves during the experiment of automatic handwriting, we find that when it is guided nothing appears ; but if it is left to itself a very signifi-

cant fact is discovered. By a light pressure one stops its writing; by a little push the graphic movement is quickened; when the hand is motionless it is often enough simply to touch it in order to start it up again. It continues to be suggestible, therefore, during the whole experiment; and this suggestibility shows clearly, in my opinion, that an unconscious personality directs its movements. Moreover, our other experiments have already shown us that it exists and what rôle it plays, while all that we have observed and described in hysterical patients constitute an argument in favor of this opinion.

PART III.

ALTERATIONS OF PERSONALITY IN EXPERIMENTS ON SUGGESTION.

CHAPTER I.

ARTIFICIAL PERSONALITIES CREATED BY SUGGESTION.

The principal characteristic of the psychological problem of this book remains the same through all its forms. Each new chapter only brings forward a new aspect of the same phenomenon. We find further proof of this here, for we shall now study the following psychological situation: A person has been regularly put, let us say, in a state of artificial somnambulism, receiving suggestion by the ordinary methods. This suggestion is carried out either during somnambulism or after returning to the waking state. My aim is now to prove by an analysis of the experiments that suggestion usually induces a division of consciousness, and can realize itself only by so doing.

It is not difficult to show that this new study is connected with the preceding ones by a logical bond.

Heretofore we have studied suggestions communicated to a subconscious personality during a state of distraction or anæsthesia. We know that the subconscious personality is nothing more nor less than a somnambulistic personality. It is therefore the same person, taken under slightly different conditions, who always receives and performs suggestions.

Adopting our own opinion of the alterations of personality, suggestions may be divided into two groups—those whose direct end and aim is to create a new personality, and those whose object is entirely different, and can only be attained by a division of consciousness. A separate chapter will be devoted to each of these classes of suggestions. There are undoubtedly very intimate relations (and indeed phenomena of transition) between the two classes thus distinguished; but we should not the less retain the classifications and even exaggerate its importance a little. For the phenomena of division of consciousness are sometimes so complex and subtile that if they were all combined under a common description we could never really understand them.

Suggestion may, I have said, have its end and aim in the creation of a new personality. The experimenter then chooses the sort of personality he wishes to induce and obliges the subject to realize it. Experiments of this kind succeeding in a great many somnambulists, and usually producing very curious results, have long been known and have been repeated, one might say, almost to satiety within the last few years. M. Richet was the first author to study them systematically, and the description which he has given of them is sufficiently interesting to be quoted in full. It is, indeed, a model observation.

As an introduction to the facts, we may briefly recall, with the author, some ideas of current psychology.

When we are awake and in full possession of all our faculties we can imagine sensations different from those which we ordinarily experience. For example, when I am sitting quietly at my table engaged in writing this book, I can conceive the sensations that a soldier, a

woman, an artist, or an Englishman would experience in such and such a situation. But, however fantastic the conceptions may be that we form, we do not cease to be conscious withal of our own personal existence. Imagination has taken flight fairly in space, but the memory of ourselves always remains behind. Each of us knows that he is himself and not another, that he did this yesterday, that he has just written a letter, that he must write another such letter to-morrow, that he was out of Paris for a week, etc. It is this memory of passed facts—a memory always present to the mind —that constitutes the consciousness of our normal personality.

It is entirely different in the case of the two women, A—— and B——, that M. Richet studied.

"Put to sleep and subjected to certain influences, A—— and B—— forget their identity; their age, their clothing, their sex, their social position, their nationality, the place and the time of their life—all this has entirely disappeared. Only a single idea remains—a single consciousness—it is the consciousness of the idea and of the new being that dawns upon their imagination.

"They have lost the idea of their late existence. They live, talk, and think exactly like the type that is suggested to them. With what tremendous intensity of life these types are realized, only those who have been present at these experiments can know. Description can only give a weak and imperfect idea of it.

"Instead of imagining a character simply, they realize it, objectify it. It is not like a hallucination, of which one witnesses the images unfolding before him, as a spectator would. He is rather like an actor who is seized with passion, imagines that the drama he plays is

a reality, not a fiction, and that he has been transformed, body and soul, into the personality that he sets himself to play.

"In order to have this transformation of personality work it is sufficient to pronounce a word with some authority. I say to A——, 'You are an old woman'; she considers herself changed into an old woman, and her countenance, her bearing, her feelings, become those of an old woman. I say to B——, 'You are a little girl,' and she immediately assumes the language, games, and tastes of a little girl.

"Although the account of these scenes is quite dull and colourless compared with the sight of the astonishing and sudden transformations themselves, I shall attempt, nevertheless, to describe some of them.

"I quote some of M——'s *objectivations:*

"*As a Peasant.*—She rubs her eyes and stretches herself. 'What time is it? Four o'clock in the morning!' She walks as if she were dragging sabots. 'Now, then, I must get up. Let us go to the stable. Come up, red one! come up, get about!' She seems to be milking a cow. 'Let me alone, Gros-Jean, let me alone, I tell you. When I am through my work. You know well enough that I have not finished my work. Oh! yes, yes, later——'

"*As an Actress.*—Her face took a smiling aspect instead of the dull and listless manner which she had just had. 'You see my skirt? Well, my manager makes me wear it so long.* These managers are too tiresome. As for me, the shorter the skirt the better I like it. There is always too much of it. A simple fig

* "The subject is a very respectable woman, mother of a family, with much religious sentiment."

leaf! Mon Dieu, that is enough! You agree with me, don't you, my dear, that it is not necessary to have more than a fig leaf? Look then at this great dowdy Lucie—where are her legs, eh?

"'See here, my dear!' She began to laugh. 'You are very timid with women; that's wrong. Come and see me sometimes. You know I am always at home at three o'clock. Come and make me a little visit, and bring me something.'

"*As a General.*—'Give me the field glasses. All right! all right! Where's the officer of the First Zouaves? Ho! the Kroumirs! I see them coming up the ravine. Commander, take a company and charge them. Take a company, too, and scour the country. Those zouaves are splendid! How well they climb! What do you want? What, no order?' (Aside.*) 'He's a poor officer, that fellow; he doesn't know how to do anything. Here, you, wait a minute. Left face! Double quick!' (Aside.) 'That is better. That's not very well.' (Aloud.) 'Hullo! my horse and sword!' She makes a gesture of buckling her sword in her belt. 'Forward! Ah! I'm hit!'

"*As a Priest.*—She imagines that she is the Archbishop of Paris. Her face becomes very grave. Her voice is mildly sweet and drawling, which forms a great contrast with the harsh, blunt tone she had as a general. (Aside.) 'But I must accomplish my charge.' She leans her head on her hands and reflects. (Aloud.) 'Ah! it is you, Monsieur Grand Vicar; what is your business with me? I do not wish to be disturbed. Yes, to-day is the first of January, and I must go to the

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* "The 'asides' of these dialogues are also very interesting They are spoken very low, scarcely moving the lips, but distinctly."

cathedral. This throng of people is very respectful, don't you think so, monsieur? There is a great deal of religion in the people, whatever one does. Ah! a child! let him come to me to be blessed. There, my child.' She holds out to him her imaginary bishop's ring to kiss. During this whole scene she is making gestures of benediction with her right hand on all sides. 'Now I have a duty to perform. I must go and pay my respects to the President of the Republic. Ah! Mr. President, I come to offer you my allegiance. It is the wish of the Church that you may have many years of life. She knows that she has nothing to fear, notwithstanding cruel attacks, while such an honourable man is at the head of the Republic.' She is silent and seems to listen attentively. (Aside.) 'Yes, fair promises. Now let us pray!' She kneels down.

"*As a Religious Sister.*—She immediately kneels down and begins to say her prayers, making a great many signs of the cross; then she rises. 'Now to the hospital. There is a wounded man in this ward. Well, my friend, you are a little better this morning, aren't you? Now, then, let me take off your bandage.' She gestures as if she were unrolling a bandage. 'I shall do it very gently; doesn't that relieve you? There! my poor friend, be as courageous before pain as you were before the enemy.'

"I might cite other objectivations from A——'s case, in the character of old woman, little girl, young man, gay woman, etc. But the examples given seem sufficient to give some idea of the entire transformation of the personality into this or that imaginary type. It is not a simple dream, it is a *living dream.*

"B——'s objectivations are quite as striking as those of A——. I may cite some of them:

"*As a General.*—She goes 'Hum, hum!' several times, assumes a severe manner, and speaks in an abrupt way. 'Let us go and have a drink! Waiter, an absinthe! Who is this coxcomb? Here, let me pass. What do you want?' A piece of paper is handed her, which she seems to read. 'Who is it?' Answer: 'A man of the First.' 'Ah! good! There!' She scribbles something illegible. 'You will hand that to the adjutant major. Now make yourself scarce. Well! that absinthe?' He is asked if he is a member of the Legion of Honor. 'Of course!' Answer: 'There are stories abroad about you.' 'Ah! stories! But! but! *Sacrebleu!* What stories? Take care how you provoke me! Who dares call me lazy?' She flies into a rage, which almost ends in a nervous attack.

"*As a Sailor.*—She reels along like a sailor who has just landed after a long voyage. 'Ah! there you are, my old friend, let us have a drink! I know a little tavern where we will do very well. There are some stunning girls there.' I need not describe the rest of the story.

"*As an Old Woman.*—Some one said to her, 'How do you do!' She bent her head and said, 'Eh!' 'How are you?' Again she said, 'Eh! speak louder, I am a little hard of hearing.' She seated herself, still complaining, coughed, felt her chest and knees, saying to herself: 'Such pains! Oh dear! oh dear! Ah! bring me your child. She is a nice child. Kiss me, darling, and go and play. Have you a little tobacco?'

"*As a Little Girl.**—She speaks like a little girl of five or six years. 'I want to *pay*. Tell me *tome-*

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* "This personification lasted an hour and a half, and she did not once give up the childish forms of speech or behaviour."

sing. Let us play hide and seek,' etc. She runs about, laughing, hides, and plays *hide and seek.* This tiresome game lasted for nearly a quarter of an hour. It was succeeded by blindman's buff, then by hide the stick, etc. She then wanted to play with the doll, and rock it to sleep. Some one told her the story of Little Red Riding-Hood. She said that it was very pretty, but sad. She was asked if it was a moral tale, and she replied that she did not know what 'moral' was. She did not wish to tell any more stories, grew angry, pouted, cried, stamped her foot, etc; would not have a Punch and Judy show because it was a little boy's game; said she would be very good, and asked for her doll or candies.

"*As M. X——, a Pastry Cook.*—This last objectivation was particularly interesting, for, several years ago, she was in M. X——'s employ and was by him beaten and treated so brutally that the law interfered, I believe. B—— imagined herself to be this M. X——, her face changed and took on a look of importance. When customers came she received them very kindly. 'Certainly, sir, you shall have your ice cream this evening at eight o'clock. Will the gentlemen give his name? Pardon me for not having any one here, but my clerks are so negligent. B——! B——! Let that blockhead be discharged! And you, sir, what do you wish?' Reply: 'I am the Superintendent of the Police, and I have come to know why you beat your servant.' 'Sir, I have never beaten her.' Reply: 'Yet she enters a complaint against you.' She assumed a very embarrassed manner. 'Sir, she complains unjustly. I may perhaps have pushed her, but I did not hurt her. I assure you, sir, she exaggerates. She made a scandalous scene in the store.' She becomes

more and more embarrassed. 'She ran away. I assure you she exaggerates. And, besides, I never entered into any agreement with her. I made proper amends to her.' Reply: 'You beat your children.' 'Sir, I have not *children*, I have only one child and I do not beat him.'

"We see that in this objectivation of B——'s, although the personality that she represents may be very disagreeable to her, she does not try to present him as ridiculous or obnoxious. She endeavours, on the contrary, to excuse him, so completely does she carry out the personation. Her annoyed and constrained manner, her evasive but polite answers, were perfectly consistent with what a guilty individual might say, think, and do when questioned by a magistrate.

"Moreover, the complete transformation of feelings is not the least curious phenomenon of these objectivations. A—— is timid, but she becomes very daring when she thinks herself a bold person. She is very religious, but becomes very irreligious when she represents an irreligious person. B—— is silent, she becomes talkative when she represents a talkative person. The disposition is thus completely changed. Old tastes disappear and give place to the new tastes that the new character represented is supposed to have."

In a more recent paper, prepared with the co-operation of M. Ferrari and M. Hericourt,* M. Richet has added a curious detail to the preceding experiments. He has shown that the subject on whom a change of personality is imposed not only adapts his speech, gestures, and attitudes to the new personality, but that even

* La Personalité et l'écriture, essai de graphologie experimentale, Revue Philos., April, 1886.

his handwriting is modified and brought into relation with the new ideas that absorb his consciousness. This modification of handwriting is an especially interesting discovery, since handwriting, according to current theories, is nothing more than a sort of imitation. I cite some examples borrowed from these authors.

It is suggested in succession to a young student that he is a sly and crafty peasant, then a miser, and finally a very old man. While the subject's features and behaviour generally are modified and brought into harmony with the idea of the personality suggested, we may observe also that his handwriting undergoes similar modifications which are not less marked. It has a special character peculiar to each of the new states of personality. In short, the graphic movements change like the gestures generally.

In a note on the handwriting of hysterical patients, I have shown that under the influence of suggested emotions, or under the influence of sensorial stimulations, the handwriting of a hysterical patient may be modified. It gets larger, for example, in cases of dynamogenic excitation.

The characteristic of the suggestion that we have just studied is that it does not bear exclusively on perception or movement—that is to say, on a limited psychic element; but there are comprehensive suggestions. They impose a topic on the subject that he is obliged to develop with all the resources of his intellect and imagination, and if the observations be carefully examined, it will also be seen that in these suggestions the faculties of perception are affected and perverted by the same standard as that of ideation. Thus the subject under the influence of his assumed personality ceases to perceive the external world as it exists. He

has hallucinations in connection with his new psychological personality. When a bishop, he thinks he is in Nôtre Dame, and sees a host of the faithful. When a general, he thinks he is surrounded by troops, etc. Things that harmonize with the suggestion are conjured up. This systematic development of states of consciousness belongs to all kinds of suggestions, but is perhaps nowhere else so marked as in these transformations of personality.

On the other hand, everything that is inconsistent with the suggestion gets inhibited and leaves the subject's consciousness. As has been said, alterations of personality imply phenomena of amnesia. In order that the subject may assume the fictitious personality he must begin by forgetting his true personality. The infinite number of memories that represent his past existence and constitute the basis of his normal ego are for the time being effaced, because these memories are inconsistent with the idea of the suggestion.

A division, or split, is therefore produced in the subject's consciousness, and it is this which brings these phenomena within the topic of this book. In consequence of the imposed suggestion the true personality, with part of its attendant states of consciousness, leaves the scene of action; it is relegated to a second plane, where it is temporarily forgotten, and a new personality, controlled by the experimenter, forms itself and develops. It borrows from the former—unconsciously, as it seems—some of its elements, particularly the motor habits of gesture and speech, without which it could not possibly find expression. M. Richet admirably expresses it thus: "Objectivation of characters depends upon a disordered memory and imagination. If the memory of our personality is perverted, consciousness

of ourself disappears. If the imagination is overexcited hallucinations are produced; and then the new ego depends entirely upon the nature of these hallucinations." *

This division of consciousness is a superficial and temporary phenomenon under the conditions of the experiments as now described; that is certain. The individual is not really divided in two, as Félida was, for example.

Division of consciousness as it appears in genuine somnambulists arises from internal causes, inherent in the very organism of the subject. It is a psychic phenomenon expressing a state of disease in the nervous centers. The case is entirely different with a subject whose personality is transformed by simple suggestion. Here the division is the result of an external cause. It is the product of an idea communicated to the subject by another person, and consequently it is not generally so serious.

Some authors even take the theory much further. They hold that in experiments of transformation of personality the subject is really playing a part, a sort of comedy, and that he may be compared to an actor who expresses sentiments which he himself does not feel. Authors who adopt this interpretation, and among them I may cite M. Delbœuf,† are by no means of the opinion that the subject tries to simulate and deceive the experimenter—the old idea of simulation is no longer held. But they think that the subject obeys from a different motive. When he receives an order, like that of representing a soldier or a peasant, he performs it to

* Art. cited, p. 235.

† Revue de l'Hypnotisme, January and February, 1889.

the best of his ability, with no other desire than that of pleasing the person from whom he has received the suggestion. He plays a comedy part, but with good intentions. The condition is then certainly a very complex psychological state, but yet it is easy to explain on this theory.

This position has been violently combated by other authors, notably by M. Bernheim,* who hold that in every case the subject is sincere and really accepts the suggestion which he receives. A new personality is communicated to him and he accepts it, because the suggestion is for him reality itself, and because for the time being he entirely forgets his former personality.

It does not seem necessary to pass judgment upon these two diametrically opposed opinions, because they appear to me to be equally correct, only they apply to different cases. There are persons who are by no means the dupes of the suggestions given to them, but who still carry them out because they are unable to resist the influence of the operator. This class of patients never forget who they are—their identity. If they are told to represent a priest, a general, or a nun, they will be capable of doing it as any of us might do it when requested, but they know that they are playing a part. They try to assume the characters desired, but they always retain the memory of their proper personality. Others, on the contrary, are completely the victims of the suggested illusion, because the memory of their former ego is for the moment entirely obliterated.

The differences of effect result from the psychic nature of the subjects respectively, and also, perhaps, from

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* The controversy is not confined to this particular class of suggestions, but to all of every kind.

the method employed by the suggester. It is useless, therefore, to enter into the discussion concerning the facts. Two facts, we should remember, may be different without contradicting each other.

Leaving this episodic discussion out of the question, we should bear in mind in bringing this chapter to a close that moralists and philosophers have often found in ordinary human life variations of personality that closely resemble those that are produced by suggestion. I may refer on this subject to an interesting work of M. Paulhan (L'Activite mentale et les elements de l'esprit).

CHAPTER II.

THE RECALL OF FORMER PERSONALITIES BY SUGGESTION.

The suggestion of an alteration of personality may be made under conditions slightly different from those just described. Instead of suggesting a new personality to the subject, the memory of a former period of his life is called up in his mind and he is obliged to live over this time again. Instead of assuring him that he has changed to the opposite sex, or that he has become a priest or a soldier, it is suggested to him that he is eight or fifteen years old. This is by no means so complete a transformation of his personality, but still it is a modification; for, as is well known, our personality is modified as time goes on. Personality is by no means a fixed entity, permanent and immutable; it is a synthesis of phenomena that varies with its formative elements, and is continually in process of transformation. Even in the course of our normal life a great number of distinct personalities succeed one another. It is by an artifice that we connect them into one, for after twenty years' time we no longer have the same feelings or judgments as at the beginning of the period.

If by suggestion the subject is put back to an earlier period of his existence and made to live over one of his dead personalities for a little, the result will be that the memory of his present self disappears for the time

being, as well as all information acquired subsequent to the date fixed by the suggestion. A division of consciousness is produced, as in cases where a strange personality is suggested. A great synthesis of phenomena disappears and is forgotten, in order to give place temporarily to an older synthesis.

Moreover, we shall see a little further on that these experiments are of greater importance than the preceding ones, for the personality that is called up is a real personality, and not fictitious—not the work of the imagination. We need not, however, go so far as to say that it is actually the former synthesis that reappears. It is only the memory, the faint echo.

Messrs. Bourru and Burot were the first to take up this line of study. They made their first experiments upon V——, the hysterico-epileptic man whose checkered career I have narrated above. They afterward extended their researches to other patients. They employed two methods to bring the subject to a former period of his existence. One of them, suggestion, is very simple, and consists in declaring to the subject that he is such and such an age, or that he lives in such and such a year, etc. Suggestion in this case is easy to manage, and we need say no more about it as a method. The second method, which is more complicated, but also more interesting and instructive, is the immediate raising up of an old psychological state of a definite date; and this state, once secured, wakes in its turn by association of ideas the series of phenomena which are grouped around it. Let us suppose the case of an hysterical person whose right arm was paralyzed when she was about fifteen years old. She has long been cured; her right arm has again become sensitive and she is able to move it freely. If by suggestion the paralysis is

made to recur, the chances are that the memories connected with the paralysis will reappear and give the subject the illusion that she is fifteen years old. This chain of ideas is established. If one link is drawn out the traction passes from one link to the next, and so passes through the whole chain.*

But here the question is a little complicated by the method of experiment adopted by MM. Bourru and Burot. These authors had at their disposal in the hospital at Rochefort this V——, who had had, at different times in his life, strokes of paralysis in different parts of his body. It was not difficult to reproduce each of these strokes of paralysis by suggestion, and finally to call up by the same means the period of existence that belonged to each. The authors did not fail to make this experiment, but they made another with it. Noticing that V—— was very sensitive to the action of metals from a distance, they endeavoured to bring about a change of his somatic state (that is to say, a change in the distribution of sensibility and of conscious mobility) by subjecting him to the action of so-called "æsthesiogenes."

Of course, I can not guarantee the accuracy of these experiments. The action of æsthesiogenes on the nervous system is still doubted by very eminent men, and the question seems to me far from being settled. We are therefore free to admit that the magnetic bars (iron, gold, and other metals) that were used to modify Louis V——'s condition only operated by suggestion, or in some similar way. The author's interpretation does not take away all interest from the experiments, since

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*I pointed out some time ago in a note in collaboration with M. Féré the rôle of such association of ideas in retrospective suggestion.

we may, if we choose, set them down under the head of suggestion.

With the help of æsthesiogenes the authors were able to produce and define six principal somatic states. They are: First, right hemiplegia, with anæsthesia of the right side; second, left hemiplegia, including the face, with anæsthesia of the left side; third, left hemiplegia, not including the face, with anæsthesia of the left side; fourth, paraplegia, with anæsthesia of the paralyzed limbs; fifth, slight paresia, with anæsthesia of the left leg; sixth, a state in which no paralysis exists, but only hyperæsthesia of the left leg. Occurring simultaneously with these physical changes they found constant transformations in the mental state of the subject, especially in his disposition and memory, which showed intimate connection with each other. As soon as a certain somatic state is induced the corresponding state of consciousness is roused and the subject is transformed. Here is an example: Let us take Louis V—— when his whole right side is paralyzed and insensible. He was in this condition when he was experimented upon during his sojourn at the military hospital of Rochefort. He has the reputation of being active and mild, but easily irritated. He now becomes violent and arrogant in his speech, appearance, and behaviour. He is a gossip and his language is coarse. He speaks familiarly of everybody and gives each a disrespectful nickname. He smokes from morning till night, tormenting everyone with his unreasonable demands for tobacco and money. His memory is accurate for things of the present; he recites whole columns from the newspaper.*

* It is a pity that the authors did not go further into this point. The study of memory is important enough to have more precise treatment.

But his memory at this time is limited to his actual presence at Rochefort, his stay at Bicêtre, and the second part of his stay at Bonneval. He does not know how he came to Bonneval, but believes it was as a child. If he is told that he learned the trade of a tailor when he was paralyzed in both legs, he says that you are making fun of him; he was never paralyzed in both legs, never learned to sew, and, as a matter of fact, does not know how to hold a needle. At Bonneval his work was gardening; the rest of his time was spent in smoking cigars. He remembered perfectly having stolen sixty francs and clothing from one of the hospital attendants, escaping, and being captured and brought back to the asylum. From Bonneval he found himself at Bicêtre, utterly unable to give any account of himself, and having forgotten all the intermediate stopping places. He gave very complete information about Bicêtre, and often spoke of the doctors who had attended him there—J. Voisin and Bourneville. Everything that happened in the regiment during the two months that he was a soldier was preserved in his memory.

Another entirely different state was produced by the application of a magnet to the nape of his neck. Respiration was hurried, and the subject remained motionless with his eyes fixed; a slight trembling of the lips was noted, then a movement of chewing and swallowing, and finally gaping and waking. Paralysis of both legs was complete in a stretched-out posture. The loss of sensibility extended over the whole of the lower part of the body. All the upper part was sensible and capable of movement. His countenance sad, and his eyes cast down, he does not dare look about him; he is polite, even timid. His pronunciation is distinct, but

childish. A book is given to him and he spells the letters and syllables as if he were learning to read. He thinks he is at Bonneval and that he has just seen M. Camuset and other persons in that asylum. His usual occupation is work in a tailor's workroom. He sews like a man who makes it his profession, and makes a sack very skilfully. Mentally he is quite dull, having no general information whatever. He only knows two places—Bonneval, where he was found, and Saint-Urbian, where he came from. He remembers having seen a viper at Saint-Urbian, which frightened him and made him ill. His memory corresponds to the rather limited period of his existence when both of his limbs were paralyzed.

It would be much too long to describe the various states through which Louis V—— passed. Not to linger longer on this patient, whose history is given at some length in earlier pages, I shall quote the story of another subject, Jeanne R——, from MM. Bourru and Burot, who have made similar experiments upon her.

"Jeanne R—— is a young woman, twenty-four years of age, very nervous and very anæmic. She is subject to fits of weeping and sobbing. She has no convulsive attacks, but frequent fainting turns. She can be easily hypnotized. Her sleep is profound, and on awaking she has amnesia.

"She was told that when she awoke she would be six years old. She thought that she was at home with her parents, that it was evening, and that they were shelling chestnuts. She was sleepy and wanted to go to bed. She called her brother André to help her finish her work, but André amused himself by making little houses with the chestnuts instead of working.

'He is very lazy; he amuses himself by shelling ten and I have to do all the rest.'

"In this state she spoke the patois of Limousin, did not know how to read, and hardly knew her A B C's. She could not speak a word of French. Her little sister Louise did not want to go to sleep: 'It is always the way,' said she, assuming a child's attitudes, 'I have to traipse up and down with my nine months' old sister.'

"Placing my hand on her forehead I told her that in two minutes she would find herself ten years of age. Her countenance became entirely different, her attitudes no longer the same. She thought that she was at Fraiss, at the château of a family by the name of Moustiers, near whom she lived. She saw paintings and admired them. She asked where the sisters were who accompanied her, and went out to see if they were coming. She talked like a child who was learning to speak. She went to school to the sisters two years ago, she said, but now she had not been for so long, because her mother was often sick and she had to take care of her brothers and sisters. She had been learning to write for six months. She recalled a dictation that she had on Wednesday, and wrote an entire page of it readily and by heart. It turned out to be a dictation that she wrote when ten years old!

"She says she is not very far advanced: 'Marie Coutureau makes fewer mistakes than I do; I am always behind Marie Puybaudet and Marie Coutureau, but Louise Rolland is behind me. I believe that Jeanne Baulieu makes the most mistakes.'

"In the same way she was told again that she was fifteen years old. She now finds herself employed by Mlle. Brunerie at Montmart. 'To-morrow we are going to a *fête*, a wedding—Baptiste Colombeau, the field-

marshal's marriage. Léon will be my partner. Oh! what a good time we will have! Oh! I will not go to the ball, Mlle. Brunerie does not wish it. I shall go just for a quarter of an hour and she will not know it.' Her conversation is more coherent than in the earlier sitting. She knows how to read and write. She wrote Le Petit Savoyard.

"The difference between the two handwritings is also very marked. On awaking she is astonished to find that she has written Le Petit Savoyard, that she no longer knows anything about. When she is shown the dictation that she wrote at ten years of age, she says that some one else must have written it." *

Since these experiments were published a great many authors have made other observations of the same kind, obtaining similar results. M. Pitres and his pupils have studied the phenomena under the name of ecmnesia. I believe that too much stress can not be laid on these retrospective suggestions; their importance has not yet been appreciated. This kind of suggestion, which allows the substitution in a person of former periods of his existence, will certainly have, one day, I am convinced, important medical applications; for, on the one hand, it serves diagnosis by allowing us to see the origin and course of hysterical symptoms in all their details; and, on the other hand, it will perhaps be found that when the patient is carried back by this mental device to the time when the symptoms first appeared, he will be more amenable to suggestions of cure. At all events, it is an experiment worth trying.

From a purely psychological standpoint, which is our only present point of interest, these retroactive

* *Op. cit*, p. 152.

suggestions teach us something new about the mechanism of the division of consciousness. They teach us, in the first place, that a host of old memories, believed to be dead when we are not able to call them up at will, still continue alive within us. Consequently the limits of our personal and conscious memory are not really those which our present consciousness takes for its absolute limits. Beyond these limits there are memories, as there are perceptions and judgments, and what we know of ourselves is only a part—perhaps a very small part—of what we are.

The laws of the association of ideas, which have been so much used and even abused in the hands of the English psychologists in the attempts to explain many phenomena of the mind, are ineffectual in these cases. They do not teach us why and how memories that are retained fail to revive at the call of new impressions which are associated with them. A particular event of childhood, which no longer comes up in the mind, may yet be recalled by retroactive suggestion. This memory certainly has not lacked opportunities in the course of the normal life of rising again to the surface of consciousness. A great many similar events have happened since. If, therefore, there is no response to this tie of resemblance, it must be because the play of association of ideas is not strong enough to rouse it, and association is therefore not sufficient to explain the development of the mental life. Undoubtedly something else besides these slight bonds is necessary to connect our ideas. More profound causes, whose nature it is difficult to determine, just because they are unconscious, operate to apportion our ideas, perceptions, memories, and all our conscious states into free and independent syntheses. When we are in one of these syntheses we

have difficulty in rousing an idea which belongs to a different synthesis. In general, association of ideas is not enough; but when some elements of this second synthesis have once been revived for one reason or another, then the entire synthesis reappears.

CHAPTER III.

ACTIONS FROM SUGGESTION.

Changes of personality induced by hypnotic suggestion create a tolerably simple psychological condition. Generally there is no coexistence of distinct personalities; one only occupies the stage and regulates the others behind the scenes.

We shall find that the situation becomes much more complicated in other kinds of suggestion, where the conjunction—the coexistence—of two mental conditions may be clearly seen.

When the subject is in a state of somnambulism an order is given him in such a way that it can only be performed after he awakes. We may wait till the time of its performance and notice the subject's action. Such observations have been made with the greatest care by many authors, and some have pointed out, intentionally or incidentally, certain mental signs which prove that at the time when the post-hypnotic suggestion is realized there is a momentary return of the original somnambulistic state. Gurney's observations, spoken of above,* here find confirmation, and it is all the more important, since the result is reached by experiments of quite a different order.

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* P.

The usual method of executing post-hypnotic suggestions may first be recalled briefly. Generally a subject who has received an order to perform such or such an action after he wakes—for example, ten minutes after his waking or at a prearranged signal—seems, on awaking from the hypnotic sleep, to resume free and entire possession of his normal intelligence. He is no longer suggestible or much less so than when hypnotized. He remembers nothing of the somnambulism through which he has just passed; he is not even aware of the deferred suggestion, which nevertheless he is to perform in an instant. If it is mentioned to him before the hour strikes or the signal is given, he does not understand the meaning of what is said to him, but treats it as a jest. Then suddenly the scene changes abruptly; the conversation he is engaged in stops, his countenance changes and sometimes assumes a striking expression of violent resolution, and the deferred suggestion is carried out (Beaunis, Liégeois).

According to those authors who do not admit the phenomenon of the division of consciousness, it is the normal subject, the subject of the waking state, who carries out the post-hypnotic suggestion. Such a case may so occur as a matter of fact, but analysis of the details of the classical observations already shows us the beginning of a division of consciousness. Thus, let us suppose a subject in the somnambulistic state has been ordered to steal, or has been given the hallucination of a bird. He commits the theft or experiences the hallucination afterward during his waking state. He therefore remembers the suggestion but not the circumstances of suggestion. He has forgotten the experimenter's order; he does not know from whom he received the order; he does not even know that an order was given to him.

This partial forgetfulness, which I have described elsewhere with M. Féré,* is by no means constant, but very frequent and difficult to understand at first. But it finds ready explanation when compared with suggestions given during distraction or with the facts of anæsthesia. Let us briefly recall the facts. When a hysterical patient is distracted, and a hallucination is ordered for the unconscious personality, the principal consciousness hears nothing of the words (murmured in a low voice), but yet it does perceive the hallucination. So, also, when a letter is drawn on an insensible hand with a blunt point, the subject does not feel the contact of the point, but he has a representation, sometimes even a hallucination, of the letter which is written.

In both cases we find the same psychological process. The spoken word, like the touch sensation on the hand, causes associated images, but the first term of the association remains in the secondary consciousness, and the second term, the image, alone gains access to the principal consciousness. Now, this is what happens in all suggestions given during somnambulism and deferred into the waking state. The principal consciousness gets the effect only—the last term of the suggestion. It is the somnambulistic consciousness that heard the words of the suggestion. And, I may add, the somnambulistic consciousness which here plays the same part as the subconscious personality in states of anæsthesia and distraction, is identically the same personality. This point has also been made clear.

We must therefore consider this class of suggestions—those that are given during a state of somnambulism to be performed or simply to continue during the

* Animal Magnetism, p. 154.

waking state—analogous to the psychological operations which show duality of consciousness.

In certain cases it seems even to be demonstrated that at the time of the performance of a post-hypnotic suggestion the normal personality of the waking state, which is not aware of the suggestion received, and which, moreover, ignores all the incidents of the experiment, and which is often so completely reconstituted as to contend against any new suggestion—this normal personality vanishes entirely, disappears, and is destroyed for the time; it is the somnambulistic person who usurps the scene. We may enumerate certain facts that prove it. The first is one pointed out by M. Beaunis *—i. e., the swift forgetfulness that follows the performance of a post-hypnotic suggestion. When asleep the subject was told to perform a certain action on awaking, such as changing the place of a piece of furniture, or turning his hands around each other. While he is obeying this order his attention is very carefully given to what he is doing. He is told to notice the movement he is making, and there can be no doubt that he is fully conscious of his action. At least that is the way Beaunis's subjects acted during the experiment. Now, in spite of the full consciousness with which they performed the orders that were suggested to them, everything was entirely forgotten some moments later. When they were asked what they had just done with their hands, they did not remember having done anything with them, and did not understand the question.

This forgetfulness is not perhaps an invariable phenomenon. Where is there an invariable phenomenon in psychology? But it is frequent, and it shows that

* Le Somnambulisme provoqué, p. 121, Paris, 1887.

when an action is performed under the influence of a suggestion it is vastly different from a voluntary and spontaneous action. This difference attaches also to suggested actions which are performed in the waking state. For if, for example, the subject had spontaneously moved a piece of furniture or made a gesture of his own accord, he would surely have remembered it.

Forgetfulness after an action is performed seems analogous to the forgetfulness that succeeds somnambulism. It shows clearly, in my opinion, that the subject, just at the time that the action is performed, is again in the mental condition of somnambulism; for the principal psychic sign of this state, the amnesia which it leaves behind it, can be proved.

Other experiments—those of Gurney, Delbœuf, Pierre Janet, Fontan and Ségard, and my own—confirm this interpretation, which rests accordingly upon a large number of facts and is not merely hypothetical.

With subjects of the kind that M. Beaunis has studied, the somnambulistic state only partially recurs at this decisive moment when the post-hypnotic suggestion is realized. They retain their self-consciousness, and the only proof that somnambulistic activity has occurred is the forgetfulness of the action afterward. There are other persons with whom, under the same circumstances, the return of the somnambulistic state is more distinct, more striking, and more complete. There is not only forgetfulness after the action, but unconsciousness while the suggested action is being performed. The normal ego remains a stranger to the suggestion. It is apart from himself, and is performed without his will or intellect, and it is to this self that it is unconscious. Unconsciousness, in this sense, is a kind of anticipated forgetfulness. The loss of consciousness, a

real aggravation of the loss of memory, assists in definitely establishing the division of consciousnesses.

I may cite some further examples, borrowing one from M. Pierre Janet: "After observing," reports this author, "the ordinary suggestions during the hypnotic state in Lucie, I gave her some orders to perform after she awoke, and was struck by the singular manner in which she carried them out. Her appearance at this time was natural enough. She talked and behaved as if she thoroughly understood all the actions that she was performing spontaneously. But through all these natural actions those which I had commanded during the sleep were performed as if in *distraction*. Not only did she forget them after performing them, like most other subjects, but she did not seem to be aware of them even while she was executing them. I told her to raise her arms after she awoke. She had scarcely come to her normal state before she raised both arms above her head; but it did not inconvenience her, nor did she seem to notice it; she came and went and chatted, still holding up both arms. When I asked her what she was doing with her arms, she was astonished at the question, and said gravely: 'They are not doing anything at all; my hands are just like yours.'" *

With other subjects the return of the somnambulistic state is still more complete. It has been found that it brings back the state of sensibility that characterizes it with each subject, and that he even acquires a suggestibility that he did not have during the waking state (Gurney).† Better still, some subjects go to sleep again in order to perform the post-hypnotic suggestion, and one author has said—exaggerating a little a fact

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* *Op. cit.*, p. 255. † Proc. S. P. R., 1887, p. 271.

that is true of some people only—that all post-hypnotic suggestion amounts to telling the subject this: "After you awake you will sleep again in order to carry out this suggestion." It is plain, however, that such an order is neither given nor understood, and that if the somnambulistic state recurs, it must be because the mental conditions involved are necessary for the accomplishment of the suggestion which is given.

Thus each individual comports himself in his own individual way. In some cases forgetfulness follows the action, in others there is unconsciousness of the action, and, finally, with some others an absolute and total loss of consciousness occurs with somnambulism. This shows us with what variations the same action may be accomplished.

These differences, however, may be reduced to a single fact—the division of consciousness and the relative importance of the two consciousnesses in action. These consciousnesses have no fixed and immovable limits. We have already twice had occasion to see that the subconscious tends continually to grow and to submerge the principal personality; and the differences observed in different subjects result from the varied degrees of development attained by the somnambulistic ego.

CHAPTER IV.

SUGGESTIONS FROM UNCONSCIOUS STIMULI.—HALLUCINATIONS.

If we may rely on our earlier conclusions, the relation of the two consciousnesses to each other during the performance of suggested acts becomes simple. We have seen that when an action is ordered the somnambulistic consciousness which received and understood the suggestion contents itself with *introducing* the idea of the action afterward to the principal consciousness, or rather it substitutes itself for the principal consciousness in order to realize the suggestion; but by certain devices very complicated situations may be created that involve corresponding complexities in the relationship of the two consciousnesses. The somnambulistic ego may be forced to co-operate with the normal ego in such a way that the suggestion becomes an act common to them.

To understand this point clearly, it should be noticed at the outset that in many cases suggestion sets a problem. It indicates to the subject an end to be attained without showing him the means of attaining it. The way to do it is not part of the suggested idea, but is left to his initiative.

Thus the subject is told to make a certain movement

eight minutes after waking, but he is not told how to estimate the time to avoid making it too soon or too late. So, also, he is told that he must no longer see an object without instructing him as to the means he should employ to accomplish that result. So, again, a hallucinatory image is suggested to him on a blank card. He is told to pick out that one from among ten similar cards, and no process is suggested to him to guide him in his search. These are three typical examples. They are, moreover, the only ones of which I can now speak. They have this fact in common—that the end is indicated, but that the means of attaining it, as I said above, is left to the initiative of the subject. Now I shall show in some detail that the subject, when questioned in his waking state, knows nothing of the means he has employed. It is the somnambulistic ego that interposes, invents the means, rejects mistaken lines of action, and assumes the responsibility of bringing the suggestion to a successful conclusion. There is collaboration between the two, if you will, but of a capricious kind. The intelligent part is played by the somnambulistic personality.

I shall speak first and briefly of hallucinations caused by stimuli. This subject has been treated at length elsewhere,* and I refer to it simply to add some supplementary details on the division of consciousness that I have come upon lately.

One law seems to dominate visual hallucinations imposed upon hypnotized persons by verbal suggestion. It is this—that the imaginary object is seen under *very nearly* the same conditions as if it were real. Thus when suggestion has created an inert and motionless ob-

* By Binet and Féré, Animal Magnetism, p. 156.

ject, this imaginary object is a fixture in the position indicated by the experimenter. A book, a key, to cite simple examples, pointed out on a corner of the table, remain placed there. The subject only sees these imaginary objects when he turns toward the table. If he shuts his eyes, if he looks away, if he leaves the room, he loses consciousness of his hallucination just as he would ordinarily lose the perception of the corresponding real object. The hallucination remains there fastened to the table, and the subject sees it again when he returns.* Seen from a distance the imaginary object seems to diminish in size; it is perceived less distinctly than when nearer, etc. To these very simple facts others may be added which it takes more complicated experiments to demonstrate, but which, I believe nevertheless, are the same in nature. When one of the eyes of the person in hallucination is pressed mechanically while he is looking at his hallucination, the imaginary object is seen double, just as is the case with real objects.† A prism displaces it, lenses magnify

* The great persistence of these hallucinations connected with external points of support is very remarkable. In my Psychologie du Raisonnement I have cited a hallucination suggested to W—— in 1884. The suggestion was that she should see a photograph of herself undressed, when in reality it was a view in the Pyrenees. My friend, M. Londe, engaged in chemical work in the Salpétrière, informs me that this hallucination has not yet passed away (June, 1891). In order that W—— may be led to see herself again it is only necessary to show her the same picture. No new suggestion has been made in the meantime which would tend to confirm the hallucination, and she has only seen the photograph four or five times.

† In giving this series of experiments for the first time on the modification of visual hallucinations by physical means I made a curious error—I attributed to Brewster the credit of having been the first to find out that the hallucination of one of these patients may

or diminish it, or make it seem upside down, according to the distance of the object from the focus of the lens. These experiments on optical hallucinations have been repeated by a great many observers, who have come, some of them quite independently, to hold the theory of "indications" (*points de repère*) that I was the first to formulate.* This theory may be summed up thus: The hypnotized person manages to combine the hallucinatory image with a sensation from real objects existing in the external world. Optical instruments, by modifying this real sensation, give the subject the idea of a corresponding modification in the hallucination. If the subject receives at a given moment two sensations instead of one, he will extend this phenomenon of doubling to the hallucination itself, and will so perceive two imaginary objects. Among the experiments that seem to demonstrate the accuracy of this interpretation I may cite one that has been frequently quoted by other authors. A person in the somnambulistic state is shown an imaginary portrait on an apparently blank card, and then this card, after being marked so that it can be found again, is put in and shuffled with several others.

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be doubled by pressure on the eye. The error was pointed out by Gurney and Hack Tuke. As a matter of fact, Brewster did not make the discovery; on the contrary, when he was asked by some one how to distinguish a real object from a hallucinatory image he replied that one only had to double the image by pressing on the eye, thinking that it was only the real object which could be doubled in this way. I attributed to him then erroneously an experiment that he did not make and an opinion quite the reverse of his. And we see that the criterion that he indicated for distinguishing reality from hallucination does not apply to these hypnotized hysterical people.

* Revue Philos., May, 1884. See Bernheim, De la Suggestion, p. 108; Lombroso and Ottolenghi, Pierre Janet (*op. cit.*, p. 154); Sappili, Revis. di Freniat., 1890.

The subject very often finds the portrait again on the same card that was shown him, and even replaces the card in the same position. We must then conclude that he undoubtedly recognises the paper of the card by some special sign, and that sign serves as an indication to him.

Reduced to this form the phenomenon that we are studying becomes commonplace, and it has been held of late that a hallucination produced by an external stimulus does not disprove simulation. If a subject really has the perception of a guiding mark, and sees it regularly modified when optical instruments are placed before his eyes, he can, even when he is not under an illusion, describe corresponding modifications that he pretends to see in the imaginary object. But it seems to me that this argument has only a semblance of force, and experiments on optical hallucinations remain, in my opinion, an excellent test against simulation.

As a matter of fact, the suggested stimulus with which the subject connects his hallucination presents some particular characteristics which it would be most difficult to simulate. In the first place, it should be noticed, in the experiments of the portrait to which we referred above, the subject was unable to tell how he recognised the card that was the mainstay of his hallucinatory image. If he was asked why he chose this card instead of that, he invariably replied, "Because the first is the portrait"; but, as the portrait is purely imaginary, that can not be the real reason, and his answer, however sincere it may be, does not help us at all. The card certainly presents a black spot, shadow, or mark—something or other; and although the subject is not able to describe it, it must somehow be used by him.

But an experiment may be described which shows

clearly that the perception of the stimulus is unconscious. Let us take a photograph, and by suggestion produce the hallucination of a portrait. The subject to whom the photograph is handed sees the portrait, but does not see the photograph that is really on the face of the card. The imaginary picture hides the real one. The subject sees what does not exist, he does not see what does exist. Under these conditions the invisible photograph—that is to say, the one that is not consciously perceived—serves as a stimulus, for if after a week, say, the subject is shown a second copy of the same photograph, he will perceive a second imaginary portrait. These hallucinations, so clearly localized, always include then an unconscious perception which serves as the subject's cue.

The expression "unconscious perception" just used puts us on the right track for an explanation of the phenomenon. We have seen that very often with hypnotized subjects what seems to be unconscious is not really so, but belongs to another consciousness, and constitutes the symptom of a state of mental disintegration. One might then suppose that the stimulus is perceived by one personality and that the hallucination is perceived by another, the case being an example of cooperation of the two personalities. As a matter of fact, that is just what happens, as M. Pierre Janet was the first to ascertain. After he had given a hallucination of a portrait on a card, he divided the subject's consciousness by the method of distraction. He thus placed himself in communication with the second personality and asked what it saw on the card. It pointed out a black spot that was really there. It was this black spot that prevented his confusing this card with the others. The principal personality, which alone was under the

illusion, saw the card and the portrait, but did not see the black spot. We find then that the theory of mental division applies to the whole series of experiments just recapitulated, and which were undertaken in 1883, at a time when the phenomena of division of consciousness were scarcely known. In these coincidences and numerous confirmations I see some proof that the work was not fruitless, but really contributed somewhat to truth.

While we admit, however, that a step has been taken in advance, it is profitable to remember as well that we are still far from the goal. The preceding experiments, by bringing out the stimulus that assists in the recognition of the hallucination, and so conveys the knowledge of its being external, have taught us an interesting fact; but how many others remain unexplained! In order to understand the results of the experiments it is by no means sufficient to prove that the unconscious person recognises the stimulus. We must suppose, besides, that he seeks it in order to recognise it when it is scarcely visible; and he does not stop there. When the operator duplicates the stimulus by pressure on the eye or in some other way, it is not the subject under hallucination who has the perception of a double stimulus; it is the unconscious personality who has it. It is therefore from it that the doubling of the hallucinatory image proceeds. It interferes in the same way when by other optical methods the stimulus is modified in various ways. It plays, in short, the principal part. It struggles to carry out the suggestion intrusted to it as well as possible, and through it the imaginary object is perceived under very nearly the same conditions as if it were real, because that is part of the suggestion that it receives. The hallucina-

tion would be very quickly recognised as false if it did not simulate reality. I am therefore inclined to think that all the different signs of hypnotic hallucination that we have described should occur with especial emphasis in cases of subjects whose unconscious personality is intelligent and knows what to do.

As for the normal consciousness, it does not seem to be aware of all this labour of criticism and elaboration that is happening about it and on a lower plane. The normal ego only knows one thing when waking from the hypnotic sleep, and that is that there is an object before him that seems to be real; but that this object does seem so to him is because it is so good a counterfeit.

To the question whether similar experiments could be repeated on spontaneous hallucinations in cases other than those of hysteria and suggestion, I think it would be safe to reply that success in such delicate experiments would depend on the presence of a well-organized *unconscious personality*.

CHAPTER V.

SUGGESTIONS FROM UNCONSCIOUS STIMULI (CONTINUED).—TIME MEASUREMENTS.

We may now describe suggestions of actions long deferred—processes in which we find a new example of mental division. The study just made of visual hallucinations, brief as it is, allows us to be still more concise in dealing with this second question, for in reality the two are cases of the same thing. They are both suggestions from unconscious stimuli.

Suggestions to take effect at an appointed time are of two kinds. An hypnotized person may be ordered, in the first place, to carry out a suggestion after he wakes and at a time denoted by a signal—as when she is told to say such and such a word to M. X—— when she meets him. I shall not discuss this sort of suggestion. In a second kind of suggestion the time is not indicated by an external event, but merely by the lapse of an interval of time. The subject is to perform such and such an action, and experience a certain hallucination after five minutes, thirteen days, or a month. In this way a person in the somnambulistic state is ordered to return again after fifteen days. At the appointed day and hour she returns. The marvellous thing about the experiment is the prolongation of the period of time indefinitely. It has even been extended to a year.

But this variation, although proving the tenacity of the subject's memory, does not complicate the suggestion much. It is as difficult to understand how the subject carries the interval of fifteen days as that of an entire year.

The real difficulty lies here: On one hand, an action is imposed on the subject which he can not perform correctly unless he estimates the flight of time; and on the other hand, if we penetrate into his consciousness when he is under the influence of the suggestion we find not only that he has no thought about the estimation of time, but, further, that he has entirely forgotten the suggestion. He is told to perform an action after fifteen days. While he is awake (i. e., during the fifteen days) he remembers nothing about it, but yet after the fifteen days the action is performed.

Bernheim first attempted an explanation. He says in substance that this measurement of time takes place consciously. From time to time the memory of the suggestion recurs in consciousness, and every now and then the subject counts the days as they pass; but this calculation is made rapidly and then forgotten. The subject immediately forgets that he has remembered it.* The supposition is interesting, but unfortunately it does not agree exactly with the facts. A large number of subjects, if they are carefully questioned before the date suggested, can tell absolutely nothing about it. Up to the time when it is realized the suggestion is unknown to them. It remains in complete obscurity, and does not become known in the intermittent way that M. Bernheim supposes. It is not forgetfulness, but genuine unconsciousness.† The solution of the

* Bernheim, De la Suggestion, pp. 172–174.

† See Beaunis, Somnambulisme, p. 243.

problem must therefore be sought for in other directions.

M. Pierre Janet was the first author to put the question clearly, and he found the solution in the events of the divided consciousness. He showed in the first place that the carrying out of the suggestion at a set time could not be produced by a simple unconscious association, but requires knowledge, reasoning—in short, certain judgments which persist in the individual's head until the time when the suggestion is realized. This is the way in which the author arranges the experiment: "When Lucie was in a state of genuine somnambulism I said to her, in the tone used for giving suggestions, 'When I clap my hands twelve times you will go to sleep again.' Then I talked to her of other things, and five or six minutes later I woke her completely. The forgetfulness of all that had happened during the hypnotic state, and of my suggestion in particular, was complete. I was assured of this forgetfulness, which was an important thing here, first, by the preceding state of sleep, which was genuine somnambulism with all its characteristic symptoms; by the agreement of all those who have been engaged upon these questions, and who have all proved the forgetfulness of similar suggestions after waking; and, finally, by the results of all the preceding experiments made upon this subject, in which I had always found this unconsciousness. Other people surrounded Lucie and talked to her about different things; and then, drawing back a few steps, I struck my hands five blows at rather long intervals and rather faintly, noticing at the same time that the subject paid no attention to me, but still talked on briskly. I came nearer and said to her, 'Did you hear what I just did?' 'What did you do?' said she. 'I was not

paying attention.' 'This' (I clapped my hands). 'You just clapped your hands.' 'How many times?' 'Once.' I drew back and continued to clap more faintly every now and then. Lucie, whose attention was distracted, no longer listened to me and seemed to have completely forgotten my existence. When I had clapped six times more in this way, which with the preceding ones made twelve, Lucie stopped talking immediately, closed her eyes, and fell back asleep. 'Why do you go to sleep?' I said to her. 'I do not know anything about it; it came upon me all at once,' she said.

"If I am not mistaken, this is the same as Richet's and Bernheim's experiment, except that it is simpler. The somnambulist must have counted, for I endeavoured to make the blows just alike, and the twelfth could not be distinguished from the preceding ones. But instead of counting the days which would have been necessary to time measurement, she had counted the noises. There was no new faculty, for all the noises were easy to hear, although she claimed only to have heard one. She must have heard them and counted them, but without knowing it—therefore, unconsciously. The experiment was easy to repeat, and I repeated it in many ways. In this way Lucie counted unconsciously up to forty-three, the blows being sometimes regular and sometimes irregular, with never a mistake in the result. The most striking of these experiments was this: I gave the order, 'At the third blow you will raise your hands, at the fifth you will lower them, at the sixth you will look foolish, at the ninth you will walk about the room, and at the sixteenth you will go to sleep in an easy-chair.' She remembered nothing at all of all this on waking, but all these actions were performed in the order desired, although during the

whole time Lucie replied to questions that were put to her, and was not aware that she counted the noises, that she looked foolish, or that she walked about.

"After repeating the experiment I cast about for some means of varying it, in order to obtain very simple unconscious judgments. The experiment was always arranged in the same way. Suggestions were made during a well-established hypnotic sleep, then the subject was thoroughly wakened, and the signals and the actions took place in the waking state. 'When I repeat the same letter twice in succession you will become rigid.' After she awoke I whispered the letters 'a, c, d, e, a, a'; Lucie became motionless and perfectly rigid. That shows an unconscious judgment of resemblance. I may also cite some examples of judgments of difference: 'You will go to sleep when I pronounce an uneven number,' or 'Your hands will revolve around each other when I pronounce a woman's name.' The result is the same; as long as I whisper even numbers or names of men nothing happens, but the suggestion is carried out when I give the proper signal. Lucie has therefore listened unconsciously, compared and appreciated the differences.

"I next tried to complicate the experiment in order to see to what lengths this faculty of unconscious judgment would go. 'When the sum of the numbers which I shall pronounce amounts to ten, you will throw kisses.' The same precautions were taken. She was awakened, forgetfulness established, and while she was chatting with other people, who distracted her as much as possible, I whispered, at quite a distance from her, '2, 3, 1, 4,' and she made the movement. Then I tried more complicated numbers and other operations. 'When the numbers that I shall pronounce two by two, subtracted

from one another, leave six, you will make a certain gesture'—or multiplications, and even very simple divisions. The whole thing was carried out with almost no errors, except when the calculation became too complicated and could not be done in her head. As I remarked before, there was no new faculty there, only the usual processes were operating unconsciously.

"It seems to me that these experiments are quite directly connected with the problem of the intelligent performance of suggestions that appear to be forgotten. The facts mentioned are perfectly accurate. Somnambulists are able to count the days and hours that intervene between the present time and the performance of a suggestion, although they have no memory whatever of the suggestion itself. Outside of their consciousness there is a memory that persists, an attention always on the alert, and a judgment perfectly capable of counting the days, as is shown by its being able to make these multiplications and divisions." *

I have nothing to add to this conclusion, which I consider perfectly accurate. I shall content myself with recalling how many times in this book series of experiments have led us to this idea of a subconsciousness which works outside the principal consciousness.

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* Pierre Janet, *op. cit.*, p. 263.

CHAPTER VI.

SYSTEMATIZED ANÆSTHESIA.

I.

A THIRD and last psychological phenomenon produced by suggestion remains to be noticed. It has attracted much attention from observers within the last few years. It has given rise to many discussions too, which, indeed, have not been without profit. A great many names have been applied to the fact, and some of them involve entire theories. Bernheim and his colleagues at Nancy use the expression *negative hallucinations*; Féré and I proposed *systematized anæsthesia*. This phenomenon might also be called unconscious perception. But too much importance should not be attached to questions of terminology. The essential point is to agree on the nature of the thing.

The phenomenon may be described as the result of a particular kind of anæsthesia. In the preceding pages I have spoken at length of hysterical anæsthesia, and have endeavoured to determine its nature and settle its limits. To facilitate the descriptions I took as a type total and complete anæsthesia. These terms should be clearly defined. Anæsthesia is "total" when it includes all kinds of sensibility of a given region, and it is "complete" when the stimulations, however great their intensity may be, do not rouse any trace of consciousness.

For example, take the case of a patient whose arm is insensible. His hand is run through with a long pin, the flesh of his fingers is burned with a hot iron, a strong pressure is brought to bear on the muscles of his arm, a strong electric current is made to pass through one of his limbs—and during all these tests he remains indifferent, perceives nothing, has no sensation of any kind, nor pain. His anæsthesia is said to be total because it bears upon all the forms of cutaneous sensibility, and complete because the most intense stimulations do not rouse any reaction in consciousness.*

But this case is really rather theoretical, and I do not know that it has been observed. In the first place, we must make exception to "complete" anæsthesia. Good judges say that hysterical anæsthesia is never complete. Insensibility is purely relative; it only holds for moderate stimulations. If the intensity of the stimulation is increased, a time comes when it penetrates into the subject's consciousness, and may even induce a momentary return of sensibility, during which stimulations that are much less intense will also be perceived.

It seems to me that similar reservation should be made regarding total anæsthesia. Very often, and even in cases where the insensibility is of long standing, all the forms of sensibility are not extinct. The temperature sense may outlast touch. There may be all possible dissociations. One of the most usual is the conservation of sensibility to electric stimulation, or to the action of metals. Partial anæsthesias are as frequent, and perhaps more so, than total anæsthesias.

Dissociation may go still further. It is not unusual

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* Pitres, *op. cit.*, p. 11.

to find that in a group of stimulations to the same sense—for example, touch or pressure—some of these stimulations may be perceived while others are not. In that case the kind of touch stimulation may be influential. In confirmation of this statement I may cite an observation I made myself upon several patients. They were insensible to pricks, pressure, and to the electric current, even though these stimulations were of great intensity. But a combination of two of these stimulations —i. e., pricking with a pin and at the same time pressing with some blunt object on the insensible skin—was sufficient to cause an extremely acute sensation of pain. With these subjects anæsthesia was partial in that it did not extend to all kinds of mechanical stimulations.*

This same characteristic is shown in all the frequent cases where anæsthesia does not extend uniformly over an entire region, but exists in areas distributed irregularly over the otherwise sensible skin with no connection with the anatomical distribution of the nerves of the region. If the point of a pin be drawn over the skin the subject may feel a slight prick on one place and feel nothing a centimetre farther on when the pin is stuck into an insensible spot—a curious phenomenon and the more important since it is very unusual. Since anatomy can not explain it, it seems that we might find an explanation in the physiology of the senses. Now, it has been held by a great many experimenters that every point of the skin has a particular manner of feeling, and that the quality of the sensation varies with the region of the skin. It is this that enables us to distinguish the spot touched, and prevents our confusing a prick on the forehead with a prick (say) on the hand. This hy-

* Contribution to the Study of Pain (Rev. Philos., 1889).

pothesis of "local signs"—for it is only a hypothesis as yet—may serve in some measure to explain this hysterical tattooing. In an insensible area the thing to consider is not the recognised insensible territory, but the group of sensations which have a common local character. Then if, some centimetres farther on, the stimulation is again felt, it is because the touch sensation is now a little different from the first. It has its difference, its sign, which enables the subject to recognise it and not to confuse it with the preceding ones. We should find here, therefore, if our hypothesis be correct, a new example of partial anæsthesias; that is to say, anæsthesia extending only to a certain group of touch sensations.*

So we are far from finding that total and complete anæsthesia which is current in books. But I shall go still further. There are other facts which show the complexity of this hysterical phenomenon in an interesting light. I borrow them from M. Pierre Janet. "There are patients who seem to be totally insensible, but who can nevertheless recognise certain particular objects. One woman who was hysterical seemed to have totally lost all sensibility in the skin of both arms and both hands. She did not feel any pain nor could she tell objects by touch. Yet she did recognise distinctly by touch certain special objects that she was accustomed to use in dressing. She knew by touching her ear whether she had her earrings in or not. She recognised her ring, and knew when it was put on and taken off without looking. . . . She also knew her steel and tortoise-shell hairpins. She could find them by touch,

* M. Janet has announced a similar hypothesis. For a study of local signs I may refer to my Psych. du Raisonnement, p. 99.

take them out and put them in, even if some one changed their position. . . . This case," adds Janet, "is not exceptional with hysterical patients." I am strongly inclined, for myself, to accept this opinion, and my own observations have often shown that with an hysterical patient the anæsthesia adapts itself to the practical requirements of the subject. He is generally able to perceive what he needs to perceive.

The preceding facts serve as a transition to the phenomenon of suggestion to which I have given the name of systematized anæsthesia. It is a state of partial anæsthesia like that just studied, and its characteristic, as in the case of the woman observed by Janet, is that it is peculiar to a certain object. This prohibition suggested extends only to the particular object mentioned to him; others he continues to perceive. For this reason the phrase systematized anæsthesia is appropriate to the phenomenon. The anæsthesia is systematized because it suppresses a system of sensations and ideas pertaining to particular objects.

Some authors, as I have said, think that the name is not appropriate. They hold that I am wrong in considering it anæsthesia, for anæsthesia means destruction of sensation or paralysis of sensibility. And it is evident that suggestion does not go so far as that. When the subject is forbidden to perceive an object, the prohibition is confined to his conscious perception; it does not suppress the sensation. So this is by no means genuine anæsthesia, and it is even possible, by means of certain contrivances of which I shall speak later on, to show that the subject at the very time when he appears not to see and hear does perceive and take note of all that is happening around him with remarkable acuteness of sense. Nevertheless these reasons

do not prevent our retaining the expression "systematized anæsthesia." But I agree to give the expression a relative meaning only. It should be clearly underderstood that if there is anæsthesia in these experiments, it is anæsthesia resulting from unconsciousness. Moreover, the same thing takes place in a great many cases of anæsthesia from hysteria; even when it seems to be total and complete it does not involve destruction of sensation. It results, on the contrary, from the simple loss of consciousness. Yet that has not been considered sufficient reason for changing the name of hysterical anæsthesia.

The important fact, and one that the terminology should clearly indicate, is that systematized anæsthesia is only a form or variety of spontaneous hysterical anæsthesia. It represents a certain degree of complication. The legitimacy of this comparison seems to me beyond question, and I take much satisfaction in the fact that a great many authors now share this opinion, which Féré and I were, I believe, the first to express.

It is precisely this that I shall endeavour to demonstrate once more, and numerous experiments made recently make the task easy, leading us to the final conclusion that systematized anæsthesia, being of the same nature as spontaneous anæsthesia, illustrates the theory of mental disintegration in a new way, for the perception forbidden by suggestion undergoes the same fate as the sensations arising from anæsthetic regions. It is relegated to a second consciousness, where it determines ideas, judgments, and actions, which are all equally unconscious to the principal personality.

I might proceed at once to an exact proof, but it will be more interesting to take a roundabout way to the same end. What I especially wish to demonstrate

in this book is coincidences on the part of observers who are not aware of them, and the unexpected agreements of results from different experiments. From this point of view the history of the question becomes of interest, since it records a series of detached endeavours which, while not planned to do so, have yet all pointed to the same conclusion. It is a rather singular fact that the question of systematized anæsthesia is one that has given rise to very many controversies, and yet it is perhaps the one question on which all experimenters are, without knowing it, most nearly agreed.

II.

The facts have long been known. Bertrand has described them most clearly, perhaps. "I have seen," says he, "the person who magnetized certain somnambulists tell them when they were asleep, 'I will that when you awake you shall not see any of the people in this room, but that you believe that you see such and such a person (mentioned) who is not here.' The patient opened her eyes, and without seeming to see any of the people around her made remarks to those that she believed she saw." * Similar descriptions may be found in the books of Teste, Charpignon, Braid, Durand (de Gros), Liébeault, and others. Usually, it is true, the experimenter resorts to indirect means to suppress the perception of an object or person, i. e., by transforming them. For example, he gives the suggestion that a person who is present is another person. Then the subject sees the fictitious person, recog-

* Traité du Somnambulisme, p. 256. Cf. Janet, *op cit.*, p. 271, from whom I take some of the details that follow.

nises his features and costume, and at the same time fails to see the person who is really there. The hallucination does duty as a screen, if I may be allowed such a comparison, to render the real object invisible. But under other circumstances the experimenter endeavours to produce systematized anæsthesia directly.

Efforts have been made to explain these curious phenomenon of the suppression of an object that is present. But the first explanations were very naïve. Teste says that it is the "magnetic fluid, a sluggish vapour, opaque and whitish, settling like a fog wherever the authority prefers, that hides the objects from the somnambulist." Charpignon, on his part, said he was able to make an article invisible by surrounding it by a thick fluid veil. There is not much to be gathered, of course, from these theories, and moreover, they were held in the same forms by all school of magnetists. Before this Bertrand had clearly comprehended the influence of suggestion of the idea imposed on the somnambulist. Braid, Durand de Gros, and Liébeault also insisted on this power of an idea. "The suggested impression," says Braid, "takes possession at a certain point of the patient's intellect, so that under its influence the function of sight may be suspended, the subject becoming blind to objects placed before him." *

This was a great step in the understanding of this phenomenon and of its connection with suggestion, but we must remember that this explanation is only partial and incomplete. It would be in place here to repeat the remarks made above on the subject of hallucinations from stimulus. The experimenter, by using the method of suggestion, indicates to the hypnotized person the

* Neurhypnologie, p. 247.

end to be attained, but he does not tell him how to accomplish it. The theory of suggestion does not give information as to the manner in which the thing is to be accomplished, and consequently it does not completely satisfy us.

In 1884 Bernheim continued the study, calling the fact described negative hallucination. He separated these from positive hallucinations, and showed by several experiments that suggestion may directly suppress the perception of present objects.* The description was excellent, but it was only a description. Soon after the work of Féré and myself on paralysis from suggestion appeared.† In this research we endeavoured especially to connect systematized anæsthesia with total hysterical anæsthesia, of which the former only constitutes a variety, and cited in that connection an experiment that has since been verified by other observers. An object which is made invisible may, if steadily regarded for some minutes, produce an image of the complementary colour. If a small red square, for example, is made to disappear by suggestion, the subject who does not see the red paper, but who gazes for some minutes at the point of space occupied by it, will see after awhile a greenish square appear at the same place. This sensation of the complementary colour is distinguished from an ordinary after-image in its mode of production, since it lasts as long as the subject looks at the invisible red square,‡ and if the subject next centres his gaze on another point he may then see the after-image of this green square. This experiment agrees with that of

* De la Suggestion, 1884, p. 27. † Revue Scientifique, 1884.

‡ I am thus correcting an error in my earlier interpretation of this phenomenon, where I considered it as an after-image (An. Magnetism, p. 235).

Regnard, who found that in spontaneous hysterical dyschromatopsia the colours that were not perceived might still give rise to complementary images. The little red square that is there before the subject's eyes, therefore, and which he professes not to see, really makes an impression upon his retinal sensibility.

Another experiment may serve to show that the invisible object is really perceived.

This experiment is much more important than the former one, and is of great interest, for it may give an idea of the true nature of systematized anæsthesia. From ten cards that were exactly alike I selected one and showed it to the somnambulist, and suggested to her that she would not see it when she awoke, but that she would see and recognise all the others. When she awoke I gave her the ten cards; she took them all, except the one that we had shown her during the somnambulistic state—the one I had made invisible by suggestion. How, we may ask, is it possible for the subject to carry out so complicated a suggestion? How does it come about that he does not confuse the invisible card with the others? It must be that he recognises it. If he did not recognise it he would not refuse to see it. Whence this apparently paradoxical conclusion—that the subject must recognise the invisible object in order not to see it!

The necessity for this process of perception, comparison, and recognition may be easily shown, for when the cards are too much alike they are often confused—the more frequently if only a corner of the cards is shown. The subject sees the card so clearly that if the suggestion is given him not to see the particular card on which the word "invisible" is written when he wakes, it may be perfectly carried out, notwithstanding

the apparent contradiction that this suggestion contains.

So in facts of this kind it is a question of real paralysis or abolished perception. There is always an unconscious judgment that precedes, prepares, and guides the phenomenon of anæsthesia. The perception of the forbidden object continues to operate, but it becomes unconscious.

Such is the conclusion at which I have arrived, and I may add that it has been reached by M. Paul Richer, who conducted researches on the question about the same time, and planned experiments similar to mine. An American psychologist whom I have cited several times, William James, has made some interesting remarks which confirm and complete the foregoing.* A stroke of the pen is made on a blank sheet and the subject is ordered not to see it. In obedience to this order he only sees the blank sheet. If the stroke of the pen is duplicated by placing a prism before one eye, at an angle of sixteen degrees, he will say that he sees a bent pen-stroke. This is a very curious result. The subject is only blind as far as a single stroke of the pen is concerned, which occupies a fixed position on the sheet of paper. It is nevertheless one of the images of this pen-stroke that is bent by the prism, and if he perceives it, it is probably because he does not recognise it as being what he has been forbidden to see. The experiment may be carried further. Up to this point both of the subject's eyes have been open. If now the eye which is not looking through the prism be closed, the subject continues to see the stroke through the prism. The closing of this eye produces no modification whatever,

* Princ. of Psychol., ii, p. 607.

but if the prism be then removed the mark disappears, even for the eye that continued to see it through this instrument. My explanation would still be that the subject recognises the invisible object when it resumes its original position, and that, having recognised it, he hastens to obey the suggestion by not perceiving it.

All the preceding facts show us in the clearest possible way that the subject acts like a person who both desires and wills not to see the object which is declared invisible. He applies himself to the task of not perceiving it, and above all he endeavours not to confuse it with other objects which he is allowed to perceive. He distinguishes it from others, and recognises it. But sometimes not recognising it, he makes a mistake and perceives it.

If the subject really carried on this process consciously—and perhaps there are some who are conscious of it all—the phenomenon would be quite easy to understand. The subject would obey the suggestion without being its dupe; he would put forth his best efforts to perform what was asked of him; he would play a part, in a sense, with a good motive. But when we look carefully we find that this preliminary mental process of perception and of recognition is not at all conscious. If the subject is asked what takes place within him when the invisible object is shown him, he gives no information. He "does not see anything"—beyond that he can say nothing. That, at least, is what I found to be the case with a very intelligent hysterical patient, whom I informed of the suggestion that I had given him.

We may sum up, therefore, by saying that systematized anæsthesia is preceded by certain unconscious psychological phenomena.

But there is more. The invisible object is perceived

and recognised. What happens next? Once perception and recognition have occurred, we might suppose that the subject then forgets again, that he becomes absolutely blind and deaf, and that his anæsthesia is now complete. But this is not at all the case. The perception of the object continues, only it now operates unconsciously. This is shown by the experiments of Bernheim.

A very curious fact comes to light here. It is always interesting to see authors make experiments that confirm arguments against which they have contended or against which they might be disposed to contend. The position that Bernheim has held from the first on the subject of hypnotism is familiar. This author holds the theory of suggestion with great emphasis—without reservation or distinction. To him suggestion is the key to all hypnotic phenomena. It explains everything and is sufficient for everything. In his works there is what an artist would call a strong prejudice toward simplification, and I am convinced that this characteristic furnishes the real reason for the success of his ideas. Now it will appear that the experiment arranged by Bernheim confirms mine on the one hand, and on the other hand supposes that the subject has many hidden resources of consciousness.

One of the facts observed is that when an inhibitory suggestion has been given, the subject has no conscious perception of anything happening about him. He may become blind and deaf so far as to submit without protesting to personal outrages. Bernheim is nevertheless convinced that, notwithstanding these appearances, the subject loses nothing of all that happens around him. The proof is that if he is put to sleep again, and given a retrospective suggestion that he has seen and heard

everything, and then emphatically ordered to relate the occurrence, he describes it with the accuracy of an attentive witness who has not allowed the slightest detail to escape him.

I may quote the author's experiments *verbatim*:*

"Elise B——, eighteen years old, a servant suffering from sciatica. She was a respectable young girl, steady, of average intelligence, and, with the exception of her sciatica, presenting no neuropathic manifestation, symptoms, nor hereditary tendencies.

"It was very easy after her first sitting to bring on somnambulism coupled with a state in which she was sensitive to hallucinations, both hypnotic and post-hypnotic, and to amnesia on awaking. I easily developed negative hallucinations with her. During her sleep I said to her, 'When you wake you will no longer see me, I shall have gone.' When she awoke she looked about for me and did not seem to see me. I talked to her in vain, shouted in her ear, stuck a pin in her skin, her nostrils, under the nails, and thrust the point of the pin in the mucous membrane of the eye. She did not move a muscle. As far as she was concerned, I had ceased to exist, and all the acoustic, visual, tactile, and other impressions emanating from myself made not the slightest impression upon her; she ignored them all. As soon, however, as another person touched her with the pin unknown to her, she perceived it quickly, and drew back the member that had been pricked.

"I may add, in passing, that this experiment is not equally successful with all somnambulists. Many patients do not realize negative sensorial suggestions, and

* Revue de l'hypnotisme, December 1, 1888.

others only partially. Some, for example, when I declare that they shall not see me on awaking, do not see me indeed, but they do hear my voice and feel my touch. Some are astonished to hear me and feel the pricks without seeing me, others do not attempt to understand it, and finally others believe that the voice and the sensation come from another person who is present. They violently accuse her of it, and this person protests in vain that it is not she and endeavours to prove it to them, but they remain convinced that it is.

"Sometimes the negative hallucination is made complete for *all their sensations* when the suggestion is given in this way: 'When you wake if I touch you and prick you, you will not feel it; if I speak to you, you will not hear me. Moreover, you will not see me, I shall have gone.' Some subject's sensations are quite neutralized after this detailed suggestion, with others only the visual sensation is neutralized, all the other negative sensorial suggestions remaining ineffectual.

"The somnambulist of whom I speak realized everything to perfection. Logical in her delusive conception, she apparently did not perceive me with any of her senses. It was useless to tell her that I was there and that I was talking to her. She was convinced that they were simply making fun at her expense. I gazed at her obstinately and said: 'You see me well enough, but you act as if you did not see me. You are a humbug, you are playing a part!' She did not stir and continued to talk to other people. I added, with a confident manner: 'However, I know all about it. You can not deceive me! It is only two years since you had a child and you made away with it! Is that true? I have been told so.' She did not move, her face remained peaceful. Wishing to see, on account of its

medico-legal bearing, whether a serious offence might be committed under cover of a negative hallucination, I roughly raised her dress and skirt. Although naturally very modest, she allowed this without a blush. I pinched the calf of her leg and her thigh. She made absolutely no sign whatever. I am convinced that she might have been assaulted in this state without opposing the slightest resistance.

"That established, I asked the head of the clinic to put her to sleep again and suggest to her that I should again be there when she awoke. This she realized. She saw me again and remembered nothing that had happened in the interval. I said to her: 'You have just seen me. I talked with you.' She was astonished, and said: 'Why, no, you were not there.' 'I was there, and I did talk with you. Ask these gentlemen if I didn't.' 'I saw those gentlemen very well. M. P—— tried to persuade me that you were there. But that was only a joke. You were not there.' 'Very well,' I said, 'but you remember everything that happened while I was not there—all that I said and did to you!' 'But how could you say and do anything to me when you were not here?' I insisted; speaking seriously and looking her in the face, I laid stress on every word: 'It is true I was not there, but you remember just the same.' I put my hand on her forehead and declared: 'You remember everything, absolutely everything. There, speak out! What did I say to you?' After a moment's concentrated thought, she blushed and said: 'Oh no, it is not possible, you were not there. I must have dreamed it.' 'Very well; what did I say to you in this dream?' She was ashamed and did not want to say. I insisted. At last she said, 'You said that I had had a child.'

'And what did I do to you?' 'You pricked me with a pin.' 'And then?' After a few minutes she said: 'Oh no, I would not have allowed you to do it; it is a dream.' 'What did you dream?' 'That you exposed me,' etc.

"In this way I was able to call up the memory of all that had been said and done by me while she supposed that she did not see me. Therefore, in reality she both saw and heard me notwithstanding her apparent obtuseness. But, convinced by the suggestion that I should not be there, her consciousness had been closed to impressions coming from me; or rather her mind had neutralized the sensorial perceptions successively as they were produced. It had effaced them, and so completely that I was able to torment her physically and morally. She neither saw nor heard me. She saw me with her bodily eyes, but she did not see me with the eyes of the mind. She was smitten with blindness, deafness, and psychical anæsthesia, as far as I was concerned. All sensorial impressions emanating from me were distinctly perceived, but remained unconscious for her. It is clearly a negative hallucination, an illusion of the mind regarding sensorial phenomena.

"I have repeated this experiment with several subjects susceptible to negative hallucinations, finding that in every case the memory of all that the senses had perceived unconsciously could be re-established."

These remarkably simple experiments show fully the double consciousness of the subject at the moment when he obeys suggestions. But how are we to understand the fact that a person remembers so accurately what she has been forbidden to see, when she has taken no interest and no part of her has been attentive to the forbidden things during the whole of the experiment?

A whole series of unconscious perceptions were evidently produced, and then retained by an unconscious memory; but the experimenter has by no means suggested to the subject the idea of all that. He has not even thought of it himself. He limits himself to imposing the idea of not seeing with all possible emphasis, but he does not in any way indicate how this prohibition is to be performed. In this experiment or suggestion something takes place that is not suggestion, and it consists in the division of the subject's personality. I do not stretch the truth very much when I say that Bernheim here, willingly or unwillingly, brings testimony to the support of the theory of the division of consciousness.

I shall now cite some curious observations made by M. Liégeois, a lawyer at Nancy, who worked with Liébeault and Bernheim and shares most of their ideas. The studies that he made on what is called negative hallucination in Nancy lead to the same conclusion as those of Bernheim. They can not be explained unless the hypothesis be accepted that the individual to whom the suggestion is made has two distinct personalities at once. M. Liégeois has the advantage of seeing this conclusion clearly. He formulated and published it, believing that he was describing a new psychological state. M. Pierre Janet's experiments had already been published in the Revue Philosophique at that time; but M. Liégeois does not allude to them and very probably did not know of them.

His experiments may be summed up thus: He gives a person in the somnambulistic state a suggestion that on waking he will not be able to see or hear him or perceive him in any way. The suggestion is carried out exactly. On waking the somnambulist neither sees him nor answers when he speaks to him. Anæsthesia,

in the reported observation, was so complete that the experimenter could thrust a pin in the subject's arm without its being perceived or causing pain. Yet the subject retained all his sensibility; but it was dominated to such a degree by the suggestion that he was not aware of anything proceeding from the person who had been made invisible. Nevertheless M. Liégeois found that there was a way of establishing communication with this person; it was by talking to him in an impersonal way, for example, by saying to him, "X—— is thirsty," "X—— is hungry," "X—— is going to take a walk." The subject did not seem to hear, but after a few minutes performed the action that had been indicated. He performed it without being conscious of what he was doing, in any case without remembering it; for if any one of the assistants asked him what he was doing, he could not give any account of it. I cite these unconscious phenomena again, not because they are very interesting or very new; the fact of importance for us is that an unprejudiced experimenter reaches exactly the same results that others have done. M. Liégeois, interpreting his experiments, says: "This shows that during the negative hallucination the subjects sees what he does not seem to see, and hears what he does not seem to hear. Two personalities exist within him—an unconscious ego that sees and hears, and a conscious ego that does not see nor hear. . . ."* I need not dwell upon this. Yet I am not the first to discover the coincidence. Many others have already been struck by it, even those who are not versed in such studies. I shall content myself with quoting one of M. Liégeois's experiments in full.

* De la Suggestion et des Somnambulisme dans leur rapport avec la jurisprudence, etc., 1889, pp. 701–711.

"I no longer existed, as far as Mme. M—— was concerned, to whom M. Liébeault had, at my request, suggested that when she woke she would no longer see or hear me. I spoke to her, she did not reply. I stood before her, she did not see me. I pricked her with a pin, she felt no pain. She was asked where I was, she said she did not know, that I had undoubtedly gone, etc.

"I then conceived the idea of making some suggestions in loud tones to this person, for whom I had seemed to become an entire stranger; and, what was a very singular thing, she obeyed these suggestions.

"I told her to rise, she rose; to sit down, she seated herself; to make her hands revolve round one another, she did so.

"I suggested a toothache to her, and she had a toothache; sneezing, and she sneezed; I said that she was cold, and she shivered; that she ought to go to the stove—in which there was no fire—and there she went; until I told her that she was warm, and then she was all right. During all this time she was, as far as all the assistants were concerned, as fully awake as they were. When questioned by them she replied that I was absent, she did not know why, perhaps I would soon come back, etc. Questioned by me, with the use of the first personal pronoun, all my questions remained unanswered. She only realized the ideas I expressed impersonally, if I may use such an expression, and as if she drew them from her own thought. It is her unconscious ego that causes her to act, and the conscious ego has not the slightest idea of the impulse that she receives from without.

"The experiment seemed to me sufficiently interesting to bear repeating on another subject, Camille S——,

and here is a concise *résumé* of the proofs and verifications secured some days later from this young girl :

"Camille S—— is eighteen years old and a very good somnambulist. M. Liébeault and I have known her for nearly four years. We have often put her to sleep. We always found her to be perfectly sincere, and we came to have entire confidence in her. This statement is necessary, as we shall see, to give weight to the singular results obtained, which confirmed absolutely the first observation made on Mme. M——.

"M. Liébeault put Camille to sleep, and at my request suggested to her that she would no longer see or hear me; then he left me to experiment in my own way. When she awoke the subject was in communication with everybody, except that I no longer existed for her. Yet, as I am about to show, that is not quite accurate. It was as if there were two personalities within her—one that saw me when the other did not see me, and that heard me when the other paid no attention to what I was saying.

"In the first place, I assured myself of the state of her sensibility. And it was very curious that this existed for all the assistants, but did not exist for anything emanating from me. If any one else pricked her she quickly drew her arm back. If I pricked her she did not feel it. I stuck pins in her that remained hanging from her arms and cheek. She complained of no sensation, not feeling them at all.

"This fact of anæsthesia, not real, but in a measure personal, is certainly very singular. It is quite new, if I am not mistaken. In the same way, if I held a bottle of ammonia under her nose she did not push it away, but she turned away from it when it was presented to her by a strange hand.

"While she is in this condition, neither seeing nor hearing me—apparently, at least—almost all the suggestions are carried out that may be made in the waking state. I sum them up in the order in which they follow, from my notes taken at the time, June 14, 1888.

"I need not repeat that if I speak directly to Camille S——, if I ask her, for example, how she is, how long it is since she stopped growing, etc., her countenance remains impassive. She neither sees nor hears me—at least she is not conscious of so doing.

"I then proceed, as I said above, impersonally, talking not in my own name, but as if an internal voice of her own was speaking, and expressing such ideas as the subject would be likely to get from his own private thought. Then somnambulistic automatism shows itself in this new and unexpected guise, as complete as any of the other forms already known.

"I said aloud: 'Camille is thirsty; she is going to the kitchen for a glass of water that she will bring back and set on this table.' She did not seem to have heard me, and yet in a few minutes she acted as I had said, and carried out the suggestion with that brisk and impetuous manner which has already been frequently noticed in somnambulists. She was asked why she brought the glass that she put on the table. She did not know what was meant. She had not moved. There was no glass there.

"I said: 'Camille sees the glass, but there is no water in it, as they are trying to make her believe; it is wine, and very good wine, too; she is going to drink it, and it will do her good.' She promptly performed the order thus given her, then immediately forgot all about it.

"I made her say some words in succession that

were scarcely proper, 'Devil take it! Confound it! Con——,' and she repeated all that I suggested to her, but instantly losing the memory of what she had just said.

"A certain M. F——, astonished at this, upbraided her for using these unseemly expressions. She said: 'I did not say those vulgar words. What do you take me for? You are dreaming; you must have gone mad.'

"She saw me without seeing me, as this shows. I said, 'Camille is going to sit on M. L——'s knee.' She immediately jumped violently on my knee, and on being questioned, declared that she had not moved from the bench where she was seated a moment before.

"M. Liébeault spoke to me. As she neither saw nor heard me *consciously*, she was astonished, and then began a conversation with him in which I played the part of prompter, but of a prompter who dwelt in her own brain. I suggested all the following words to her and she uttered them, thinking that she was expressing her own thought:

"'Monsieur Liébeault, aren't you talking to the wall? I must put you to sleep to cure you; we will change rôles,' etc.

"'Monsieur F——, how is your bronchitis?'

"M. F—— asked her how and why she said all this. She replied, after I had whispered to her: 'How do you think it comes to me? Just as it comes to every one. How do your own thoughts come?' and she continued to enlarge upon the theme given her by me.

"She seemed to be in a perfectly normal state, and held her own with all the assistants with great presence of mind. Only in the midst of her conversation she

inserted the phrases that I created in her mind, unconsciously making them her own.

"Thus, while she was arguing with M. F——, whom she told that she would take to Mareville,* her interlocutor having objected 'I am not insane,' she replied: 'All insane people say that they are not insane; you say that you are not insane, therefore you must be insane.' She was very proud of her syllogism, and never suspected that she had just got it from me.

"Wishing to make sure, once more, that she saw me without being conscious of it, I said: 'Camille is going to take a bottle of cologne out of M. L——'s vest pocket; she will uncork it and enjoy its delightful odour.' She rose, came directly to me, looked first in the left, then in the right pocket, took out a bottle of ammonia, uncorked it, and inhaled it with pleasure. I was obliged to take it away from her.

"Then, still under the influence of suggestion, she took off my right shoe. M. F—— said to her: 'What are you doing there? You are taking off one of M. L——'s shoes!' She was offended. 'What are you talking about? M. L—— is not here, so it is not possible for me to take off his shoe. You are still more insane than you were just now!' And when M. F—— raised both arms while he was talking to me, Camille cried: 'Absolutely, I must take you to Mareville. It is too bad! Poor M. F——!' He did not seem to be cast down by her remark. 'But what shoe is that that you are holding; what is it?' I came to my subject's assistance and said: 'It is a shoe that Camille must try on; she was not able to do it this morning at home, because the shoemaker did not keep his appointment.

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* Lunatic asylum, near Nancy.

He was drunk, and he has only just brought it. She is going to try it on right here.'

"All that is accepted, repeated exactly, and promptly performed, as if by spontaneous inspiration. For propriety's sake she turned toward the wall to try on my shoe. She found it a little large because I said it was a little large, and returned it to me because I said she ought to return it to me.

"Finally, at my suggestion, she took the glass back to the kitchen. When she returned, questioned by M. F——, she declared that she had not left the room, that she had not drunk anything, and that she had not had a glass in her hands. It was of no use to show her the wet ring that the bottom of the glass had left on the table. She did not see any ring, there was none, they were trying to fool her! And then, in order to prove what she said, she passed her hand over the table several times, making the leaves fly on which I took my notes and which shared in my privilege of being invisible, without seeing them. If there had been an inkstand there, it too would undoubtedly have been thrown to the floor.

"In order to bring this series of tests to an end I said aloud: 'Camille, you are going to see and hear me. I will open your eyes. You are now all right.' I was three metres from her, but the suggestion operated. Camille passed without any apparent transition stage from the state of negative hallucination into which M. Liébeault had thrown her into the normal state, which in her case was as usual accompanied by complete amnesia. She had no idea of all that had just happened—the numerous experiments, varied in every conceivable way, the hallucinations, the words, the actions in which she played the principal part—all

this was forgotten, it was all, as far as she was concerned, as if it had not been."

M. Pierre Janet's experiments do not differ fundamentally from those of M. Liégeois, but they are more careful and scientific in method. M. Liégeois is only led to admit a duality of selves by reasoning. M. Janet makes the division visible. He makes us witness the workings of two consciousnesses which remain distinct and unaware of each other.

The methods employed to demonstrate the second consciousness are various, but the simplest and most direct is that of distraction. I have already said so much on the subject that it is needless to dwell upon it again at length. Only let us remember that the subject's attention is concentrated upon one thing—for example, by making him chat with another person—and while he is in this state of distraction some one speaks to him in a low voice, and arranges with him that he shall answer questions in writing. In this way his personality is divided. There is a consciousness that talks with the first questioner, and another consciousness that exchanges ideas with the second. By this method the experimenter may become acquainted with the second consciousness, ascertain its powers, and know in particular how much of the external world it perceives. If this is carried on after the subject has received a suggestion of systematized anæsthesia, it may be easily seen whether the forbidden perception has taken place in the second consciousness, and whether the second personality is able to describe an object in minute detail which to the first consciousness, the one that speaks, is quite invisible.

M. Janet made this observation by applying the suggestion of anæsthesia to an object lying in a collec-

tion of similar objects. This kind of experiment is most instructive, since it shows better than others how complicated a mechanism systematized anæsthesia involves. Here, for example, is a subject in a state of somnambulism to whom five white cards are shown, two of which are marked by a little cross. He is ordered when he awakes no longer to see the cards marked with the cross. Although the subject—that is to say, his principal personality—obeys the suggestion, and on awaking only sees the three white cards, the second personality behaves quite differently. If it is spoken to in a low voice and asked to describe what he is holding, it replies that there are two cards marked with a little cross. The same test may be repeated by substituting for the cross more complicated guiding marks which require calculation to be recognised. For example, one might suggest to the subject not to see the squares of paper that have an even number or a multiple of six upon them, etc. The result of these experiments is exactly the same as in the preceding cases, although the second consciousness can not take in at a single glance and recognise the card which the other consciousness ought not to see. This proves to us that the second consciousness may perform an action requiring reasoning. Besides, the experiments have been varied in a thousand ways, and very nearly the same result has always been obtained.

It is interesting to notice in this connection that it is possible, at least with some people, to induce systematized anæsthesia without directly suggesting it. When an order has been given in the somnambulistic state, and this order is to be performed in the waking state, it frequently happens, as I have already said above, that during the performance of the action the

personality is doubled. One of the consciousnesses performs the action, and the other consciousness, the principal consciousness of the waking state, remains unaware of the experiment. The arm may be raised, the hand may perform a complicated transaction, while the normal ego is not aware of it. I have occasionally seen subjects take a walk in this way without suspecting that they are doing so. Now, these are remarkable examples of systematized anæsthesia produced by an indirect means, i. e., by a post-hypnotic suggestion addressed to the unconscious personality. It is to him that it appeals, at least in cases of the class of subjects of which we have been speaking, and he is the same as the one who, in cases where anæsthesia is directly suggested, takes charge of the forbidden perceptions. It is therefore not surprising that the result should be very nearly the same.*

There are undoubtedly some psychological differences between the two experiments, for the suggestion is not given in the same way. In one case it is suggested to the subject not to see; he is given a prohibition, a negative suggestion; and in the other case the performance of an action is suggested, a positive suggestion is given. But it is not necessary to dwell upon minor differences, for our aim is principally to connect facts of the same kind, and to grasp the important analogies.

In view of the whole series of preceding studies we reach this proposition, that in suggested anæsthesia perception is by no means suppressed or destroyed, but that it may be preserved to form part of another consciousness. This is exactly the conclusion at which we

* Janet, *op. cit.*, p. 282.

arrived from the study of spontaneous hysterical insensibility, and this conclusion might have been foreseen *a priori*, from the consideration that systematized anæsthesia only differs in method from spontaneous anæsthesia. But I have preferred to demonstrate that the result may be directly attained by employing a different method.

III.

It remains to criticise and modify slightly the conclusion which we have now reached. It does not seem to me quite accurate to hold that all suggestion of systematized anæsthesia directly results in producing a division of personality and in passing the forbidden perception from the personality A to the personality B. This is obviously not just what the authors cited affirm, and the facts may be reviewed in a somewhat different light.

The nature of the phenomenon depends greatly, it seems to me, upon the psychological preparation to which the person on whom the experiment is performed has been subjected. If this person has often been hypnotized, if he shows all the phenomena of mental division, if he already possesses an unconscious personality which is well organized and ready to act, it is very possible that this person is attentive during the experiment, understands what is wanted, and is alert in a measure to the perception of the invisible object, and so secures it. This is clearly the case with Janet's patients, and no further proof of it is needed than the dialogue between the operator and his subject. Lucie was forbidden to see the cards marked with a cross. "At this time," says the author, "I kept at a distance from her, and availing myself of a moment of sufficient

distraction, I ordered her to take a pencil and write what she had in her lap. The right hand wrote, 'There are two papers marked with a little cross.' 'Why did Lucie not return them to me?' 'She can not, she does not see them.' Analyze this latter reply and judge of its complexity." We have here a subconscious personality who not only understands what it sees, but judges the other personality—the conscious one—and knows what it is able to see, say, and do. Such a psychical development can only come at the end of a train of experiences. The subject must have had frequent experiences of the division of consciousness in order to come to perform it with this precision. But, after all, if the phenomenon had not shown this artificial exaggeration, it would not have been so clear. Yet I am persuaded that when a suggestion of systematized anæsthesia is tried for the first time with a person who has not had training, nothing of this kind would be produced. A certain perception is found to be excluded by suggestion from the sphere of consciousness —that is all. This exclusion is the principal fact. What becomes of this psychological state? Does it remain isolated or is it taken up by a second budding personality? This, it appears to me, is just the variable things.

These reflections remind me of what I saw myself in cases of hysterical subjects whose unconscious movements in anæsthesia during their waking state I studied. It will be remembered that I have shown again and again that the result of anæsthesia may be to isolate psychological phenomena, as in the case of distraction. There arise two parallel processes. It is therefore logical to try and find out whether the subconscious movements in anæsthesia, in cases of subjects to whom

negative suggestions have been given, might not furnish some information as to the perception of the invisible object.

The results, however, are quite different. We have seen what reply the unconscious personality makes in experiments on distraction. The writing of the anæsthetic subject does not always give the same reply. So the distinction should be about this: If the inhibitory suggestion completely suspends the perception of an object—if, for example, the subject has been told that he will no longer see any of the characters on a printed page—it may be that the anæsthetic hand will reproduce these characters, thus proving that the subconscious personality continues to perceive them; or else the hand, betraying the dominant state of the subject, will confine itself to writing indefinitely, "I do not see, I do not see." When the suggestion has operated to transform the object—as when, for example, the sight of a photograph results in the idea that the photograph represents something quite different—then it is this delusive sight that is found to be described by the automatic handwriting.

So the results are a little less simple than in the state of distraction. We have already had occasion to report similar facts several times. The division of consciousness produced during a state of distraction has a clearer, more marked, and more systematic character than that derived from anæsthesia, and the consciousnesses are so distinctly separated that they often cease to communicate. In anæsthesia, on the contrary, communication persists, and any important state that is found in one of the consciousnesses has a tendency to spread to the other. This is a satisfactory explanation of the fact that when a portrait is masked by the hallu-

cination of another portrait, it is this hallucination, suggested to the principal consciousness, that absorbs the subconsciousnesses.

I can not leave this question of systematized anæsthesia—one of the most important topics that we have had to discuss—without saying a word more about its great obscurity. Notwithstanding the great value of the results acquired, we are far from being able to foretell from beginning to end the entire series of phenomena which will be produced from the moment that the suggestion is given until it is realized. What we do recognise very well is the condition reached, the final result, the dissociation. But we do not know how the perception of the object and the various memories connected with it have managed to pass from consciousness A to consciousness B.

We have had reason to think from many experiments that in order to cease to see an object—to have that alone excluded from sight—a person must begin by perceiving and recognising it, however that may be done, and the rejection of the perception can only take place after it has been established. Further, as the experiment proceeds, if the experimenter modifies the invisible object, as, for example, by interposing a prism before the subject's eyes (experiment of William James), it is still necessary for the intelligence to intervene and decide whether the object thus modified shall be perceived or not. All this process of supervision is necessary; without it the suggestion would be fulfilled blindly and badly. Now, who does this supervising? What is the intelligence that always decides that the subject shall perceive this and not that? It is not the normal ego, for that is not conscious of anything. It only accepts what it gets. It must be, therefore, a per-

sonality capable of *seeing the object*, for in order to have the suggestion perfectly carried out—in order that a card which is invisible in a pack of ten may not be confused with the others—there must be some one who compares it with all the others, and consequently perceives them all. As to what this personality may be, I for one am completely in the dark both as to its existence and the way it operates. Experiment has taught me nothing, and I simply accept what seems reasonable.

In bringing these reflections to a close, let me say that here, too, as with hallucinations, although certain facts have been discovered, little is known in comparison with what still remains to be investigated.

I pass over several questions that I have already treated in the Revue Philosophique—for example, the relation between systematized anæsthesia and inhibition—since I could only give my personal views.

CHAPTER VII.

DIVISION OF PERSONALITY AND SPIRITISM.

I.

Recent researches have thrown new light upon phenomena of spiritism, or so-called "spiritualism," by showing that these phenomena are due largely to mental disaggregation or division. There is no essential difference between the experiments which I have now described upon hysterical patients and the more spontaneous experiments that the spiritists practise upon themselves. The principal differences lie in the minor or, one might almost say, anecdotal conditions—i. e., in the medium, the terms employed, the imagined explanations, etc.

What, then, is spiritism? Everybody knows, at least by hearsay, for it has long raged in France (and elsewhere) like an epidemic. The exhibitions which have taken place are so numerous and so varied that it may be found difficult perhaps to sum up in a few words the chief characteristics of the doctrine.

But it is not my intention to consider the question as a whole; I simply wish to indicate its points of connection with the psychological theories expounded in the preceding pages.

I shall begin with some necessary eliminations. According to some writers there are certain spiritist

phenomena which are produced apart from the agency of persons or other known causes. There are certain physical phenomena such as rappings on the walls, lifting of tables and other pieces of furniture by themselves, handwriting by pencils that move all alone or written between two slates, apparitions that can be photographed and even printed. I do not deny the existence of these phenomena, because I do not wish to deny anything beforehand; but scientific demonstration is another thing.

Limiting the topic of our study in this way, let us examine the main points that still remain in a spiritist *séance*. It is a collection of facts, always about the same in all the descriptions of the professional writers. These facts consist in unconscious movements performed by a person called a *medium*, who is understood to serve as an instrument for the spirits when these latter desire to communicate with living persons.

Authors who have described thought communication with the spirits of the dead have made the mistake of mixing description with hypothesis, and the latter element is generally absurd. We are obliged, therefore, when we consider the case, to distinguish between the facts observed and their interpretation. This already suggests the need of analysis. What is a spirit? Is the presence of the spirit called up really proved when the medium believes himself to be in communication with him? This is simply a gratuitous hypothesis. The fact of observation is that the medium—that is to say, a person who is admitted to be better fitted than others for the kind of experiment that I am about to describe—can express thoughts which are not his own involuntarily, and with no consciousness of having done so.

We may therefore examine the two fundamental experiments to which all the others are reducible. These are table-turning or talking and automatic handwriting. Moreover, these two phenomena are, after all, identically the same.

When a table is used several persons seat themselves around it and place their hands upon it. Other things may be substituted for the table, but that is immaterial. The people ask the spirit a question, and soon through the influence of their touch the table turns, raises its leg, or strikes the floor in a manner agreed upon beforehand—that is, the spirit responds by giving one rap with the table leg for yes and two raps for no; or rather—and this is a more ingenious method—some one keeps pace through the alphabet with the number of raps on the table. The letter at which it ceases is the one indicated by the spirit. In this way, by exercising a little patience, entire sentences may be constructed.

The process of automatic handwriting is much more direct and simple. The table is done away with. A point is put on the medium's pencil and it writes the spirit's reply entirely alone, the medium having neither the will to write nor the consciousness of what he has written.

The spirit manifestations that I shall deal with belong to the earlier class.

Now, in what do these phenomena consist? In unconscious and involuntary movements. That is obvious enough for the movements of automatic handwriting. And as for the turning tables, it has long been demonstrated for that, too, by the most exact researches, that they turn simply from the impelling influence of the hands.

For a long time it was believed that these movements should be attributed simply to fraud; and as a matter of fact, in many cases nothing would be easier to simulate. By pressing lightly on a table the leg may be raised, and a medium could write at the same time without any trouble, declaring that he did not know what he wrote. But we must abandon this common explanation, for a great many trustworthy people assert that they themselves have been the agents in the phenomenon, having their hands placed on tables which turned and holding pens that wrote, with no intention whatever of making the table move or the pen write.

These are sufficient proofs, even though the doctrine of spiritism, tends to spread everywhere and make thousands of converts. Those who demand material proof of phenomena that do not admit of it run the risk of losing the commonest knowledge and of maintaining opinions contrary to the most evident truth.

The first observers who endeavoured to get an exact account of spirit actions had exaggerated prejudice in favour of finding analogies in the phenomena of normal life. The attempt was made to show that each of us performs unconscious movements. The example most frequently cited is that of the exploring pendulum described at length above. In short, it was thought that the "motor power of ideas," to use a psychological phrase, gave a sufficient explanation of spirit phenomena. But this explanation is entirely insufficient, as it is easy to show, and we ought not to be astonished that the adepts of the doctrine do not allow themselves to be convinced by it.

As a matter of fact, careful study of the phenomena shows that automatic handwriting proceeds from a thought other than the conscious thought of the me-

dium. There are within him at a given time two thoughts that are unaware of each other, the only communication between them being by the automatic movements of handwriting. To be more exact, there are two coexisting personalities, for the thought that guides the automatic handwriting is by no means an isolated and detached thought; it has a character of its own, and it even bears the name of the spirit whose presence has been invoked.

We find here, therefore, a new and curious example of mental disaggregation and division of personality. One of the authors who understands the true nature of spirit phenomena best, Mr. Meyers,* summed up the theory of multiple personality very exactly at a time when M. Janet's studies on somnambulism and my own on hysterical insensibility—which tend to the same result—were not yet begun. This new coincidence, added to so many others, confirms the results, and proves that notwithstanding the imperfections and errors of detail that must exist in these researches, as in all others, the conclusion is fundamentally correct.

As with experiments in suggestion, those in spiritism succeed best on a certain class of subjects, among whom hysterical patients hold an important place. Hysterical patients, and somnambulists generally, furnish the greater part of the good mediums. One may see that by glancing over the works on spiritism. Every now and then the most discreet author finds himself obliged to say that such and such an excellent medium had a nervous crisis or was soon fatigued, in consequence of delicate health. It is, moreover, generally admitted that spiritist performances predispose to nervous com-

* Automatic Writing, Proc. S. P. R., 1885.

plications. Charcot reported a striking example of this very thing.*

II.

Coming to details, I borrow from Myers, and quote in full, one of the most interesting observations that he has collected. It was communicated to him by M. A——, a friend whose trustworthiness he guarantees.

"The experiment was made one day at Easter, 1883, and after an interval of a week continued upon three consecutive days. 'Upon the first day,' says the observer, 'I became seriously interested; on the second, puzzled; on the third I seemed to be entering upon entirely novel experiences, half awful, half romantic; upon the fourth, the sublime ended very painfully in the ridiculous.'

"FIRST DAY.

"The author took a pen and put the question. The pen wrote the reply.

"*Question.*—Under what conditions may I learn from the unseen?

"*Answer.*—(A straight line.) The hand immediately moved, though not to a very satisfactory issue. But as my expectation of the answer had been that the condition was a strict adherence to the absolute rule of right—holiness, in short—I took this answer to be at any rate consistent with my expectations, and continued.

"*Question.*—What is it that now moves my pen?

"*Answer.*—Religion.

"*Question.*—What makes my pen write *that* reply?

* Maladies du système nerveux, iii, p. 228.

"*Answer.*—Conscience.

"*Question.*—What is religion?

"*Answer.*—Worship.

"Here a difficulty arose. Although the author did not expect any one of those three replies, still, when the first letters were written, he foresaw the rest of the word. This might spoil the result. Cons——, for example, might be finished as 'consciousness' if the author had thought of this word instead of conscience. Then a singular fact occurred, as if an intelligence wished to prove by the form of the reply that it was the only cause of the response, and that the latter was by no means the result of expectation. My next question received a singular reply.

"*Question.*—Worship of what?

"*Answer.*—Wbwbwbwbwb.

"*Question.*—What is the meaning of wb.

"*Answer.*—Win buy.

"*Question.*—What?

"*Answer.*—Know(ledge).

"Here the author had the anticipated perception of the words that were to be written, and the pen made a sudden jerk, as if to say that it was useless to continue.

"*Question.*—How?

"*Answer.*—Here I was referred to the first answer. Although strongly impressed by the first replies, which at first sight seemed to prove an independent intelligence and will, the author noticed that, on the whole, he had learned nothing new, and thought that the whole thing was due to unconscious cerebration and to expectant attention. Having asked questions about facts with which he was not familiar, but could verify, and having obtained unintelligible or wrong replies, he abandoned the experiment.

"SECOND DAY.

"*Question.*—What is man?

"*Answer.*—Flise.

"The pen, while writing this reply, was violently agitated.

"*Question.*—What does F stand for?

"*Answer.*—Fesi.

"*Question.*—l?

"*Answer.*—Le.

"*Question.*—i?

"*Answer.*—Ivy.

"*Question.*—s?

"*Answer.*—Sir.

"*Question.*—e?

"*Answer.*—Eye. Fesi le ivy sir eye.

"*Question.*—Is it an anagram?

"*Answer.*—Yes.

"*Question.*—How many words in the answer?

"*Answer.*—Four.

"The author tried to guess, but did not succeed and gave it up.

"THIRD DAY.

"*Question.*—What is man?

"*Answer.*—Tefi hasl esble lies.

"*Question.*—Is it an anagram?

"*Answer.*—Yes.

"*Question.*—How many words in the answer?

"*Answer.*—V (i. e., five).

"*Question.*—What is the first word?

"*Answer.*—See.

"*Question.*—What is the second word?

"*Answer.*—Eeeeee.

"*Question.*—*See?* Must I interpret it myself?

"*Answer.*—Try.

"M. A—— found, in the first place, as a solution, 'Life is less able.' He took the anagram of the preceding day and found, 'Every life is yes.' But the pen seemed to indicate a preference for another order, for the words, 'Every life yes, is.'

"Astonished by the production of these anagrams, that seemed to him to prove an intelligence independent of his own, the author became from this moment a confirmed spiritist, and it was with respectful fear that he resumed his interrogations.

"*Questions.*—Who art thou?

"*Answer.*—*Clelia!*

"*Question.*—Thou art a woman?

"*Answer.*—Yes.

"*Question.*—Hast thou ever lived upon the earth?

"*Answer.*—No.

"*Question.*—Wilt thou?

"*Answer.*—Yes.

"*Question.*—When?

"*Answer.*—Six years.

"*Question.*—Wherefore dost thou speak with me?

"*Answer.*—E if Clelia e l.

"The author interpreted it in this way, 'I Clelia feel.' To the question whether this was the solution:

"*Answer.*—E if Clelia e l 20.

"*Question.*—Is twenty your age?

"*Answer.*—(She was eternal.)

"*Question.*—Then twenty what?

"*Answer.*—Words.

"The interrogator stopped here, and was prevented from continuing until the next day. The author believed at this time that he was in communication with a spirit with a romantic name who would become in-

carnate in six years. He is very much agitated and sleeps badly.

"FOURTH DAY.

"The interrogation was resumed with the same exalted mood.

"*Question.*—Wherefore dost thou speak with me?

"*Answer.*—(Undulating line.) The handwriting repeats the question.

"M. A——, without allowing himself to be disconcerted by this repetition, considering it as a solemn response of a penetrating spirit, examined the motives of his conduct, purified his thought from all earthly alloy, and continued:

"*Question.*—Wherefore dost thou answer me?

"*Answer.*—(Undulating line. Repeats the question.)

"*Question.*—Do I answer myself?

"*Answer.*—Yes.

"*Question.*—Is Clelia here?

"*Answer.*—No.

"*Question.*—Who is it then now here?

"*Answer.*—Nobody.

"*Question.*—Does Clelia exist?

"*Answer.*—No.

"*Question.*—With whom did I speak yesterday?

"*Answer.*—No one.

"*Question.*—Why didst thou lie?

"*Answer.*—(Undulating line: Why didst thou lie?)

"*Question.*—Do souls exist in another world?

"*Answer.*—M. B.

"*Question.*—What does M. B. mean?

"*Answer.*—*May be.* From this time the pen sometimes affirmed and sometimes denied Clelia's existence."

This observation, so interesting from every point of view, may serve as a basis for the discussion of the very complex, delicate, and varied phenomena by which division of consciousness is shown in the medium.

I will not stop to prove in detail, by means of a strict demonstration, that the spirit called up by the medium is nothing more nor less than the subconscious personality of the hysterical patients, which easily conjures itself up in the waking state. The analogy of the two psychological situations is so clear and so obvious that I deem it quite needless to dwell upon it.

It will be more profitable to examine what there is that is peculiar in the spirit experiment, and I shall study successively, first, the extent of the division of consciousness; second, its means of expression and manifestation; and third, its causes.

The first point is certainly the best understood and the most studied. Even the dialogue form of the account clearly shows the duality of personalities, and the subject of the observation notices repeatedly that he had a feeling of conversing with an intelligence and a will other than his own.

Furthermore, this intelligence asserts itself so clearly as a personality distinct from the normal ego that it christens itself, taking the romantic name of Clelia, a name that the subject pretends never to have known; at all events, if he knew it he has not kept any conscious memory of it. This unknown name of Clelia, suddenly written by the medium's hand, seems to have impressed the observer forcibly, and he said that for awhile he believed that he was dealing with a real person. All of us can imagine his feelings at that time, and I dare say that more than one reader will be tempted to renew the experiment (against which, how-

ever, I think that he should be cautioned, for in each experience one always tends to lose a little of the unity of his thought and the clearness of his intellect).

With regard to the contents of the replies, M. A—— remarks that he has never secured information of facts that are unknown to him. On this point many observers may be brought forward. In a general way it is correct to say that the unconscious personality that plays the part of the spirit, being only a detached part of the medium's intelligence, can not have other faculties and other knowledge than he himself has. The reading of the numerous spiritist revelations that have been published in which celebrated people have been made to talk as Socrates and Aristotle, etc., shows that no one has been able to extract from these great geniuses any profound or worthy thought. They are usually commonplace reflections that do not by any means exceed the capacity of an ordinary intelligence. But we must take the conditions of the experiment into account in order to appreciate the results. The solemnity of the evocation, the magnitude of the end to be attained, and the attention of the audience must often exaggerate the subconscious person's faculties for the moment, and make him think thoughts of which he is incapable during relaxation. And it may be added that the subconscious person may have an extent of memory and an acuteness of perception unknown to the normal person. That we saw in the cases of hysterical patients. All this may contribute to give a mysterious form to the written replies, although the natural explanation is nevertheless easy to find.

The unexpected quality of the replies is, however, a good sign of the division of consciousness. The medium, as we have seen, confines himself to asking ques-

tions. In order to know the reply he must read it for himself. He is often unable to do so without the assistance of another person, the handwriting is so indistinct. He may also make mistakes in his reading which will be corrected later by a new intervention of the spirit. The reply may be of a strange and unexpected nature. Sometimes it is a pleasantry, a joke, or even a coarse remark that astonished the medium all the more if he has asked a serious question. Finally the reply may take the form of an anagram or a puzzle. It sometimes contains facts that the medium had forgotten, etc.

It follows from these results that the division of consciousness only breaks up the thinking processes. It remains within the province of ideation. No phenomena yet discovered show the sensibility of the peripheral organs in any way modified, as is the case with hysterical patients. Spiritist writers rarely mention this point. They are generally enthusiasts and mystics, ill prepared for methodical investigation. Moreover, it is probable that the question whether the medium's arm becomes insensible in writing would seem to them an utterly insignificant question and quite devoid of interest. When endeavouring to converse with the souls of the dead, one should not disgrace himself by looking out for insensibility to pin pricks. It is nevertheless worth notice that in many cases the medium, relating his own feelings, declares that he has not felt the movements of his hand in writing. Others perceive clearly that the hand moves, but do not know what it has written until they see the paper. These observations are not invariable, for in other cases the medium seems to have been conscious of the whole experiment. Nevertheless it is probable that with some

subjects the medium's writing induces a certain degree of anæsthesia.

An experiment, unfortunately standing alone, but very significant, demonstrates this fact. William James one day watched a young man who showed the phenomenon of automatic handwriting to a high degree. His arm and right hand were sensible before the experiment. While the hand was tracing some characters Mr. James pricked this hand several times, sharply enough to arouse a keen sensation of pain. The young man felt nothing, neither the pain nor the contact. He had therefore become temporarily anæsthetic in the right arm, precisely as the hysterical patients do when thrown into a state of distraction. This transitory anæsthesia was evidently the result of division of consciousness, as the following shows: The subconscious person who manifested himself by writing, felt the pain, and wrote the words, "Do not hurt me."

III.

The division of consciousness is clearly established, therefore, at least with many mediums. It is no longer possible to entertain doubt on this point. A peculiar feature of these experiments is the illusion that seems to dominate the subconscious person. To understand this illusion clearly we must remember how the facts present themselves in the quiet experiments in the laboratory, which lack almost all dramatic character. When we come to detect the unconscious person that the anæsthesia of an hysterical patient reveals, we are in the presence of a little group of elementary phenomena which scarcely form a subconsciousness and not a personality at all. In a state of induced distrac-

tion this secondary consciousness, as we have also seen, is much more developed. It is distinct from the principal consciousness, and often curiously calls it *the other*. It is very easy to get it to accept a different name. This name, it should be noticed, does not by any means apply to a fictitious personality. It groups together very real phenomena—elements of a psychological life which has really been experienced. Under the name of Adrienne, for example, M. Janet's subject described part of his present and past life taken out of his whole existence. It is just here that the difference is clearly shown between our experiments and those of the spiritists. The subconscious person of the spiritist bears a fictitious name—Socrates, or Napoleon, or some other spirit, called up. In any case this person does not consider himself as a part of the medium, and does not apply his special memories to the medium. This difference is characteristic and contributes largely to a special and very original appearance which the spiritist manifestations present.

Why, then, these conditions of mental *milieu* which are so important in experiments of this kind? Because the medium who takes the pen does not by any means remain, as our hysterical patients do, indifferent and ignorant of the end to be attained; he has his plan and his expectations. He believes in spirits and in the possibility of calling them up. He is dominated by a powerful preconception. Moreover, it is he or the audience who generally chooses the spirit with whom he is to come into communication. Even when such a choice is not made, as in the observation on Clelia, the medium still expects to converse with an intelligence distinct from his own. In a word, he is in the most favourable conditions for autosuggestion.

Only there is one curious thing: the ego who consents to the performance of the suggestion is not the normal ego, but the secondary ego. It is this latter who receives the suggestion that he is such or such a person, and who, sustaining this illusion or obligingly complying with it—for we do not know exactly how it occurs—goes on to write messages in the style of the person conjured up, whose name he signs. In M. Richet's curious experiments, described above, which have now become classic, a person is transformed thus by suggestion and forced to represent a fictitious personality. Everything takes place as if one had been able during a moment of distraction to communicate with the subconscious and impose a new personality upon it.

The subconscious person can express this suggested personality in different ways. In the first place by writing, and this is usually what is done. It is to this means of communication that we owe the tiresome messages with which the spiritist journals are filled. The mediums have often pointed out the fact that this handwriting does not resemble their own. That is natural enough, for as Richet's, Ferrari's, and Hericourt's experiments show, the suggestions that transform the personality also modify the handwriting in the same way. If the subconscious personality becomes much developed he will not be content with merely guiding the movements of the hand. There will be a tendency to possess himself of other means of expression; he will shake the subject's head, make him make grimaces, and even set him to talking. In this case, which has sometimes been observed, the medium pronounces words of which his normal ego is not conscious. Further, sometimes in the midst of an experiment the medium

has been known to rise, gesticulate, assume a dramatic position, and represent the personality that has been called up. The medium, meanwhile, is not conscious of the part that he is playing, and when it is all done his normal consciousness retains no memory of it, for, properly speaking, it is not he that has acted; it is the subconscious personality. We have already seen so many similar situations that further remark on it is unnecessary. It is sufficient to remember that with many subjects the somnambulistic ego comes upon the scene at the time when the post-hypnotic suggestion is performed, and advances toward the footlights, while the normal ego goes into the background or disappears behind the scenes.

So by uniting together two experiments—first, suggestion of transformation of personality in the somnambulistic state; and, second, suggestion whose performance is deferred until after waking—we arrive at the same result as those reached by the spiritist experiments.

But though the result is alike, the causes are somewhat different. In our former studies we saw the division of consciousness result from two principal causes, hysterical anæsthesia and distraction. In the spontaneous phenomenon of the conjuring up of the spirit by a medium, we do not find either of these two causes in action. Undoubtedly mental modifications occur which are less simple and less easy to describe. The medium's concentration of thought, his conviction that a second intelligence is going to take possession of his hand, autosuggestion, in short, is what produces the division of his consciousness, and it would be possible by communicating the same condition of mind to an hysterical patient to reproduce all the results.

I have finally to note the comparative importance of the two personalities before us, and to understand the communications which are here particularly complex. In experiments with hysterical patients we saw groups of ideas belonging to a suggested consciousness, and by association other groups of ideas in the secondary consciousness. The suggestion is generally made between a sensation and an idea, or between an idea and a movement. It was therefore of quite an elementary order. To take an example that will show the matter precisely, the reader will remember that five pricks made on the anæsthetic hand gave the idea of the number five to the principal consciousness. Sometimes the connections of consciousness are a little complicated, and constitute a collaboration between the two rather than an association of ideas. In the medium's intellect these simple communications between personalities frequently occur. Thus there are mediums who suddenly have an abrupt mental vision of an idea that they attribute to the spirit. Sometimes, too, they hear the sound of the spirit's speech, as if it was spoken by an internal voice. All this may be explained by associations between states of which some are conscious and others subconscious. But it is very difficult to explain in this way the more complex and subtle communications that take place in many of the experiments.

Let us recall what took place in the observation on Clelia. A dialogue was carried on between the conscious and the subconscious personalities. Each question was followed by a reply that was not given at random, but proved that the question had been heard and understood. Now, the normal consciousness does not directly know the secondary consciousness. In order that the medium know the spirit's reply he has to read

his writing. So in this way the dialogue may continue. The subconscious personality, on the contrary, needs no external signs in order to grasp the thought of the normal consciousness. This thought that can not be uttered aloud, and which is often only mentally formulated, is seized, understood, and responded to by the subconscious personality. It is he who really takes the principal rôle in spiritist experiments. We grow accustomed also to find him playing an important part in the collaboration. In complicated suggestions it will be remembered it is he who assumes the responsibility for the more delicate operations. He knows everything, while the normal ego knows nothing. In the same way, in successive personalities, the ego of the second condition often knows the ego of the first, while the latter believes that he alone exists.

All these analogies should serve as our guide and inspiration in such difficult questions. And it is by this method of comparison, I think, that future researches should be conducted.*

* I might take up the subject of the "possessions" of the Middle Ages, but it has been so often quoted that it seems hardly advisable to revert to it.

CHAPTER VIII.

CONCLUSION.

I.

Ever since psychology felt called upon to part company with literature and rhetoric, and to become a real science, it has attached importance chiefly to minor well-observed facts, relegating brilliant theories to the background. No one will be surprised, therefore, at not finding a personal theory of the nature of personality in the last chapter of the book. My conclusion consists simply in a summing up of facts, and a gathering together of the scattered interpretations which the facts have suggested in the earlier pages.

First, the substance of the book may be condensed into a few lines. We have been considering the same phenomenon all the way through—the plurality of an individual's consciousness. I say consciousness, not personality, because consciousness merely denotes a collection of conscious psychological phenomena held together, whereas the term personality can not be given to such a collection until it acquires a high degree of development, and the idea of the ego is produced. Although it is difficult to define the boundary between the two—just because it is less a question of difference of nature than of degree—yet it is clear that the very simple movements induced in a normal per-

son during distraction are the sign of a subconsciousness; while, under the same conditions and with the same methods, a subpersonality can often be induced with an hypnotizable hysterical patient.

These consciousnesses and multiple personalities may be distinguished from one another by two principal facts—character and memory. These are the signs by which we are enabled to say that there is in an individual, at a given time, two, three, or even a greater number of personalities. The character with memory is best, because it not only enables us to distinguish the personalities, but also to refer to the same personality states of consciousness separated by time.

We studied, in the first place, the regular succession of two or more personalities in the same individual, both in natural and in induced somnambulism. The alternation of first and second conditions, in which each has its memory and character, shows an almost schematic regularity, which prepares us to understand clearly the most delicate phenomena that occur when the consciousnesses and personalities coexist instead of succeeding one another. In this case the sign by which one recognises the plurality of consciousnesses is furnished not by memory, but by consciousness itself. Memory, moreover, is only a form of consciousness; it is the consciousness of things past. Here consciousness of a part of the things present is suppressed. The subject thrown into the state A is not at all conscious of a certain group of phenomena constituting the state B, which coexists with the state A; so that in cases of successive personalities the same subject, placed in a state A, does not retain the memory or retrospective consciousness of the state B which has lapsed.

Coexistent consciousnesses and personalities may be observed in hysterical patients in states of anæsthesia, and they may be induced and developed somewhat by creating a state of distraction. We have studied the extent of secondary consciousnesses, the elementary phenomena of repetition and adaptation that they represent, then their independent life, their spontaneous handwriting, their suggestibility, and the acuteness of their perceptions. We endeavoured to determine carefully their points of contact with the principal consciousness, and we found that many combinations are possible. An idea belonging to one consciousness may suggest another idea in the other consciousness. Furthermore, two consciousnesses may co-operate in a common task. But while in these cases they are united from one point of view, yet they remain distinct, for the ego of the state A is not conscious of the ego of the state B.

We finally proposed to establish a relation between successions of personalities and their coexistences. We saw that the somnambulistic person who, in experiments in hypnotism and in the spontaneous attacks of somnambulism, develops remarkably, may retain part of this development in the waking state, and that it is just he who is the subconscious person that we have studied in states of anæsthesia and distraction. A thousand proofs have been given of his identity, but the best is always that of memory. The somnambulistic ego knows all the thoughts of the subconscious person of the waking state, and the subconscious ego knows those of the somnambulistic ego. This fact fully demonstrated, we examined the complex relations of the somnambulistic person with the normal conciousness, considered at a time when the

subjects performed certain suggestions of a complex nature. I simply refer to the studies on hallucination and systematized anæsthesia, which showed us that the somnambulistic ego interposes incessantly in order to assure the realization of a suggestion, which is made with no understanding of it by the normal consciousness.

To sum up, we have seen that a genuine breaking up of consciousness occurs both in cases of disease and also of subjects under experiment; and now and then, often with the assistance of a slight suggestion, one of these consciousnesses has succeeded in attaining the dignity of a veritable personality.

The personality of our subjects of observation and experiment seems to me like a complicated and frail building, of which the least accident might overthrow a part; and the stones that have fallen away from the mass become—and this is a very curious thing—the point of departure for a new structure which rises rapidly by the side of the old. This last feature, without being peculiar to hysteria, or even present with all hysterical patients, is nevertheless very characteristic of all our cases.

We must not, however, exaggerate the part that the subconscious person plays, and apply the conclusions of the foregoing studies to normal life indiscriminately. The original fact, as I said, is by no means the secondary personalities. It arises from a disaggregation of psychological elements. It is only after the event, and often artificially by suggestion, that these scattered elements are organized into new personalities. This second period of the phenomenon is distinct and independent of the first, and probably much less frequent, especially with normal individuals. I can not

admit that all the states that occur within us without our being conscious of them belong to other personages, and that, for example, when we look at an object the vague sensations by which other objects are conveyed to us in indirect vision are monopolized by secondary personalities, which are in a way crouching behind our personal consciousness. These indistinct sensations remain, in my opinion, simply scattered. To sum up briefly, three principal propositions seem established by the facts :

1. Elements that enter normally into the constitution of our ego may fall into a state of disaggregation.

2. A consciousness never ceases to accompany these elements, although the ego loses consciousness of it.

3. Sométimes, under exceptional conditions, pathological or experimental, these elements are organized into secondary personalities.

This last detail—unusual as it may be—being possible, throws much-wished-for light upon the nature of our ego and its manner of formation. In this way :

We have long been accustomed, by the usages of language, by the fictions of the law, and also by the results of introspection, to consider each person as constituting an indivisible unity. Actual researches greatly modify this important conclusion. It now seems to be demonstrated that if the unity of the ego is to be real it must have an entirely different definition. It is by no means a simple entity, for if it were, it would be impossible to see how, under given conditions, certain patients, through the exaggeration of a phenomenon which undoubtedly belongs to the normal life, could show many distinct personalities. What is capable of division must be made up of parts. If a personality can become double or triple, that proves that it is a

compound, a grouping, a resultant of many elements. The unity of our adult and normal personality clearly exists, and no one doubts its reality; but there are pathological facts which prove that this unity is to be sought in the co-ordination of the elements which compose it.

The old psychology has contributed not a little to the neglect of this truth not only by its hypotheses on the nature of the ego—holding it to be a distinct entity behind the phenomena of consciousness, superior to these phenomena and not sharing in their incessant variations—but also by the method of analysis which it applied to states of consciousness. We recall that for psychologists of the old school all the states of consciousness, so numerous, so varied, and so blended, that compose the mental life, are referred to the faculties of the mind. There was a faculty of memory, a faculty of reasoning, a faculty of perception, a faculty of volition. This terminology has been criticised with reason, as having the disadvantage of supposing the existence of certain imaginary entities. It was believed that *a* memory, *a* will, and so on, really existed. To-day we no longer allow ourselves to be deceived by this mistaken terminology. We no longer admit, except for convenience of speech, the existence of a memory. We know that what is real and living in an individual are acts of memory—that is to say, single events which are particular and distinct. The combined mass of these events may indeed receive a particular name, but this term adds nothing to our knowledge of the phenomenon; and all these acts of memory, local and special, are so clearly distinct that in some pathological cases we see a whole category of memories disappear, while others remain intact or very nearly so. Thus a person

may lose memory for visual things only—of forms, for example, or colors—and retain verbal memory which he may be obliged to use in order to supply the deficiencies of the other memory. Further, the loss of memory may be localized, specialized, to such a degree that there are persons who can not read print and yet can read music.* All these dissociations of memory are now well known, and I refrain from dwelling upon other forms of dissociation. The most important fact to be grasped from all this is that what we call our mind, our intellect, is a group of internal events, very numerous and very varied, and that the unity of our psychical being should not be sought elsewhere than in the arrangement, the synthesis—in a word, the *co-ordination*—of all these incidents.

Such is the general idea that Ribot clearly formulated in the end of his remarkable work on Les Maladies de la Personalité. "The unity of the ego, in the psychological sense of the word," he says, "is the cohesion for a given time of a certain number of states of clear consciousness, accompanied by others less clear, and by a multitude of physiological states which, although not themselves conscious like the others, yet operate as much as they. Unity means co-ordination." These lines were penned almost ten years ago. They were written at a time when none of the observations of multiple personalities which I have endeavoured to sum up in this book were yet known in detail. But we may say that recent facts have fully demonstrated their truth.

II.

May we go a step further, then, and tell how the mental compound that represents the ego is constructed

* Psych. de Raisonnement, chap. i.

from these elements? On this point recent researches shed additional light, and although it is negative yet it is none the less valuable. I shall dwell upon it all the more, because I am especially desirous of pointing out the present—and perhaps temporary—state of the question.

An important truth becomes clear after all our psychological studies. It is this—that the genesis of a personality or of a simple synthesis of phenomena can not be explained by the association of ideas. Let us recall some of these facts which have already clearly proved this. Subjects who divide their existence between two different mental conditions may in one of these conditions be utterly unable to remember events that are connected with the other. The loss of memory is so absolute that a person seen during one of these conditions is not even recognised in the second, and the physician must be twice introduced in order to be known by both personalities. It is enough to say that the usual mechanism of memory ceases to operate. An object that suggests a series of memories in the state A no longer suggests anything in the state B; nevertheless it is the same object; and, on the other hand, the series of memories is not destroyed, since the return of the first state again brings them up. It is the mechanism of the recall that is affected. In the same way suggestions that recall a former period of a person's life, revive memories forgotten during the normal state—that is to say, memories that the ordinary laws of association are incapable of reviving. The laws of association are consequently subordinate to certain higher influences, that sometimes allow them to act and sometimes stop them. Associations in themselves are by no means sufficient to form a synthesis, and it is not in the association of psy-

chological events that the explanation of a personality is to be found.

Under slightly different conditions of experiment several psychological existences coexist in the same individual, and ideas belonging to one of the consciousnesses suggest other ideas to the other consciousness. Thus when automatic handwriting is induced the principal consciousness thinks of a word and the secondary consciousness writes it. The association of ideas is by no means suspended; it operates between the two consciousnesses. But it is a rather singular fact that the two consciousnesses remain each within its own bounds. The consciousness A especially knows nothing of the ideas and movements that it induces in the domain of the consciousness B. This fact of experiment shows us in a new light the inadequacy of association to explain the formation of a synthesis. The intellect is not composed entirely of an automatism of ideas and movements, since just where this automatism goes on most regularly consciousness may stop and personality find its limitation.

All this fully confirms the interesting theoretical ideas that M. Paulhan has recently developed on the activity of the elements of thought.* M. Paulhan has considerably reduced the part attributed to the association of ideas, and shown that these associations are only workmen in the service of the higher influences that direct them.

If the association of ideas is not the cement of personality—that is, if it does not unite the many phenomena in a group and give them unity—we might well think that this part belongs to memory. Memory has been

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* *Op cit.*

dwelt upon at length as a factor in personality, and its part has been emphasized rather than the reverse. To many philosophers memory will continue to be the only foundation for our personal identity. Now, do the observations which we have reported confirm this opinion?

We have seen personalities succeed one another in the same individual. We have seen them coexist. The cause of their separation is from the first the state of consciousness. Such a personality, we have seen, is quite unconscious of an entire group of intelligent psychical phenomena. This group does not form part of this personality. The absence of an unifying consciousness is what allows us to say that there are two personalities there and not one only. The loss of consciousness in some cases assumes the material form of anæsthesia. In other cases it is distraction—that is to say, a slight and transient loss of consciousness. Now, the loss of consciousness brings us to the loss of memory. It is the same phenomenon, I have said before, for memory is nothing more nor less than retrospective consciousness. Amnesia, therefore, continues the work of anæsthesia; and as anæsthesia is the barrier that separates coexisting personalities, amnesia is the barrier that separates successive personalities. All the facts that we have studied tend to show that memory—or in a more general way, consciousness—is a factor in personality.

But is it the only one? I do not believe it, and I take stand with M. Ribot against the authors who find in memory the only foundation for personality. The proof that such an opinion is an exaggeration is that under certain conditions a person may, while retaining consciousness and memory of certain of his states, yet reject them, and consider them as foreign to his own

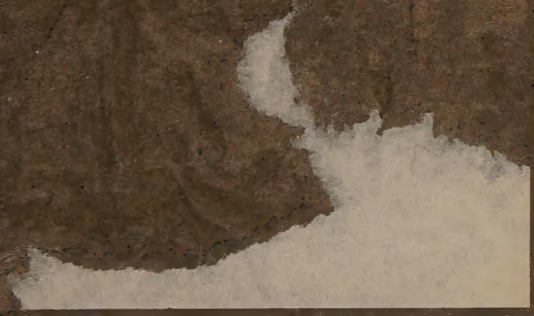
personality. The somnambulist observed by Pitres remembered, as they usually do, the events of his waking state, but he did not claim them as his own. He spoke of the person awaking as if he were a stranger, calling him *the other one*. We see the subconscious person in the waking state, who is nothing more nor less than a somnambulistic person, using similar language. He speaks of the normal ego in the third person; he knows this ego very well and calls it *the other one*. A great many other examples might be borrowed from the works of alienists.

All this shows that a single span of memory may include different states, which yet are not considered by the individual as forming part of his single personality. The judgment that unifies these states does not occur. The individual does not identify them all as his own; he does not recognise the mark of his personality on them. Why? We do not know exactly, and we can only make conjectures. Undoubtedly there is a way of feeling and acting that is peculiar to each one of us. We have our affections, our tastes, and our desires; we even have our own way of perceiving, judging, reasoning, or, in short, of thinking. The somnambulist, calling to mind the period of existence of his waking state, recognises neither the feelings, nor the thoughts, nor the actions of this somnambulistic life. Notwithstanding the memory that unites them, a division arises between these two parts of the same existence, and the somnambulist reaches this conclusion: I have not performed all these actions that I have in mind; I do not bear this name by which I am called; it is some one else.

It still remains to point out the most important conclusion to which these studies lead. I wish to

speak of the limits of consciousness. It has often been held that consciousness itself determines its own limits, and that where it ceases only physiological processes remain. Nervous activity in each of us must then be of two kinds, one bright and conscious of itself, and the other dark, unconscious, and consisting only in the changing materials that pass into the cells and fibres which compose the nervous centres. Many hypotheses have been put forward on these points. It is needless to recall the theories of Carpenter, Huxley, and Maudsley on unconscious cerebration. Moreover, I have already made some remarks on the subject. These theories must be revised, it seems, although seeming so well established. A great many physiological or psycho-physiological theories have gradually become classic without ever having been justified by sufficient proofs. By dint of repetition authority has been given to them. This holds true of the current scheme of nervous activity. It does not rest on histological data. Nay, it is even contradicted by recent histological facts. I am presumptuous enough to think that the same thing will be found true of the hypothesis of unconscious cerebration.

The hypothesis rests entirely upon the testimony of consciousness, and this testimony should be considered very suspicious. We have said that forgetfulness is often purely relative, only true of a particular mental condition, and not for a different one. We have also seen that unconsciousness may only exist for a certain personality, and cease to exist for another synthesis of phenomena. In short, the same individual may have a plurality of memories, a plurality of consciousnesses, and a plurality of personalities; and each of these memories, consciousnesses, and personalities knows only what

happens within its own limits. Outside of our consciousness may occur conscious thoughts in us that we are not aware of. It seems impossible to determine the nature, importance, and extent of these consciousnesses at present. It may be that consciousness belongs by right only to certain of our psychical processes. It may also be that it is everywhere in our organism. It might even be that it accompanies all the manifestations of life.

THE END.